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New Demand Still at a Low Rate Yet Producers Find Ground for Encouragement Considerable Buying of Pig Iron, but It Is Not General

Noteworthy evenness has been shown for some time in the daily rate of new business coming to the steel mills, with indications in some quarters that the repair of ragged stocks is responsible for the urgency of the call for shipments. This condition has encouraged producers, who interpret it to signify the approach of the irreducible minimum of demand which has so often been followed by improvement.

The United States Steel Corporation's statement of unfilled orders on hand September 30, showing 379,000 tons less than on August 31 was in line with expectations. This month's new orders have been very close to the rate of September, the lighter lines making up for the falling off in the heavier products and the export trade representing about 25 per cent. of the new business. The Corporation's subsidiary companies now have 46 idle blast furnaces against 45 one week ago.

Reports from the leading iron markets show varying activity, but all agree that the impulse to general buying is still lacking. At Chicago a sale of 10,000 tons of malleable Bessemer was made at a low price to a local interest. An agricultural buyer has closed for 6000 tons of foundry and malleable grades. On the whole Northern foundry irons have been more active than Southern. Northern Ohio furnaces have made a fair aggregate of sales in 1000 and 500 ton lots to foundries in Indiana, Michigan and Western Ohio, for delivery in the first half of 1911. These were largely on the basis of \$14 at furnaces. Not all furnaces will sell as low; for some it means actual loss and relief in lower ore prices is seven months away.

Southern sellers find the weight of increasing stocks telling against the \$11.50 level some of them have maintained. Sales of No. 2 Southern iron for delivery this year are still made at \$11, at furnace, and this price has applied on some business done for the first quarter of 1911. Pipe companies have kept up their buying from both Southern and Northern furnaces, paying \$10, it is reported, for Southern gray forge.

Two sales of 5000 tons of basic iron were made to Chicago district steel companies by local furnaces, while another Chicago company has added 6000 tons to previous purchases of 20,000 tons, largely from northern Ohio furnaces. An additional inquiry has come to Lake Erie furnaces for basic iron to be shipped to Chicago before navigation closes. In the Pittsburgh district late sales of basic have been at \$13.10, Valley furnace.

It is plain that some important buyers of finished material are counting on further reductions in price. Car works, for example, are holding up 60,000 to 70,000 tons of plates and shapes. The real test will come when the attempt is again made to buy on a large scale. Values have been known to be held better through a

period of light buying like the present than on the first appearance of attractive tonnage at the end of such a period.

The Atlantic Coast Line purchases of rails for this year were increased to 30,000 tons. The railroads have made no inquiries for 1911, but several Western lines have canvassed their requirements. A recent 5000-ton inquiry by the Grand Trunk appears to have been withdrawn. Domestic rail mills have fared well in foreign markets recently, though British works captured the 12,000-ton order for South Australia.

Low prices on bar iron made by Western mills have attracted some business at the expense of the steel bar mills. A large steel bar contract has been closed at Buffalo for Canada, buyers there not sharing the timidity of American consumers. Eastern bar iron manufacturers report a good export demand.

The cotton tie requirements for this year are estimated at 2,500,000 bundles. For October shipment the price has been fixed at 77c. per bundle.

Structural works find a lessening number of large contracts in sight. Most of them can run into the winter on present bookings, but the withholding of railroad bridge work is causing some uneasiness for the early months of 1911. In the past week several 2000-ton jobs have been taken, including Philadelphia & Reading track elevation at Port Richmond, a cement plant at Mason City, Iowa, and the National Biscuit Company Building at Kansas City. Bids will soon be taken on the bridges over the Willamette River in Oregon, calling for 16,000 tons.

The wire nail trade is in more satisfactory shape than for some time. An independent wire interest has started its plant double turn.

It is not altogether clear how the associated buyers of steel scrap in eastern Pennsylvania will ultimately proceed in view of the Government intimation that the plan heretofore followed is objectionable. Individual purchases of heavy melting steel have amounted to 20,000 tons in the case of one interest, most of it at \$14, and \$13.75 is now offered.

An International Steel Conference

The meeting in New York this week under the auspices of the American Iron and Steel Institute is unique. It is the first international gathering of iron and steel manufacturers for the discussion of questions of a commercial character. Through the various tours of the Iron and Steel Institute—the two in the United States, in 1890 and 1904, and those in Great Britain and on the Continent—a certain international acquaintance has been furthered; but it has been largely among those whose interests centered in the study of works problems, the metallurgical and mechanical side of iron and steel manufacture. The meeting of this week brings together representative manufacturers for the consideration chiefly of commercial questions. Definite statement of what is in mind in this connection has not been made, though the brief programme for Friday contains two suggestions in the papers on "Foreign Relations" and "Contract Obligations."

In proposing such a meeting Chairman Gary of the United States Steel Corporation followed somewhat the line of his address at the dinner given him in London two years ago by officers of the Iron and Steel Institute. He believed there might be international competition without undue antagonism, just as at the dinner of steel manufacturers given in his honor in October, 1909, he interpreted the new doctrine to mean "competition, but not hostility; rivalry, but not an-

tagonism; progress and success for all, but not the punishment or the destruction of any." That there is a disposition on the part of foreign steel manufacturers to respond to these sentiments has been indicated on several occasions, and the coming of a party of foreign guests to the meeting of this week is a confirmation of these expressions.

Generally speaking, the international struggle for commercial advantage is waged with growing sharpness and it is common to think that commercial rather than territorial expansion will come to be the chief cause of hostilities between nations. In the steel trade this feeling is shown in the alarm now and again raised over "dumping." British manufacturers were assured by the developments of last year that American steel manufacturers had no plans for an invasion of that market by slaughtering prices. The conditions in this country in the early months of 1909 might have led to such a campaign, if our manufacturers were ambitious to sweep the markets of the world. But it has been plain for some time that the policy of dumping has been definitely abandoned by American steel manufacturers. Proper appreciation of that fact would have saved some uneasiness recently expressed in Great Britain concerning "a heavy tonnage of American half products hanging over the market." It is fair to say that the increase in our bookings of export orders for steel in recent months has not been due to extraordinary price cutting, but is rather the accumulating result of assiduous cultivation of the foreign market by our manufacturers in the past decade in good times and bad. There is less disposition than ever on the part of American steel manufacturers to deplete their stores of raw material by sacrifice sales abroad for the sake of making the pace hot for their foreign competitors. Doubtless certain concessions will continue to be made on export sales, just as concessions have been made for some time on steel going to the Pacific Coast, where the revised tariff gives European manufacturers a better opportunity than they have ever had to place their products in some of the heavier lines. But there is little probability of any return to the policy that marked the earlier efforts of our manufacturers in outer markets.

The American Iron and Steel Institute thus enters upon its work at a time when the steel industry, at least, is not dominated by the idea of hostility and retaliation in the building up of export trade. While competition will always exist and may often be sharp, there will be ample field for the activities of an association aiming to correct demoralizing practices, to enforce contract obligations and to develop outer trade, particularly with non-producing countries, on sound and permanent lines.

A Lesson in Power House Economies

The saving of \$1,000,000 by the navy in a year's consumption of coal and lubricating oil, as a result of \$5000 offered as prizes in a competitive test between warships, is vitally suggestive of the economies that are possible in the boiler and engine rooms of manufacturing plants. The presumption is that the engineering staffs of the ships were ordinarily watchful against extravagance before the system was inaugurated. Yet this enormous percentage of saving was accomplished. Much waste occurs in the ordinary industrial power plant. Sharp attention to details of cost in their relation to efficiency would doubtless bring proportionate returns. Rewards are probably out of the question, ex-

cept, perhaps, with great concerns which operate several stations. But watchfulness would usually compel a more consistent effort at economical operation.

Paying the Workers

One of the great problems in the production of highly finished manufactured goods, greater than difficulties of manufacture, arises from the absolute necessity of producing them cheaply. Maximum output alone will not bring dividends unless the cost to manufacture enables ready sales to be made at reasonable profits, and on this problem—maximum production and minimum cost—many brains are concentrated. Processes are studied, tried, compared, and all but the paying propositions are rejected. New machines, faster and more efficient machines, are built, and the old and displaced machinery is stoically scrapped. Often the new process or the new machine proves of less value than was hoped and is abandoned, but at the year's end the progressive manufacturer can usually congratulate himself on a marked improvement in output and some little saving in production costs. Machines capable of completing 20,000 operations a day have been displaced by others turning out 50,000 in the same period. This has required considerable expense, either in the purchase of new apparatus or the construction of additional buildings, which expense must come out of the profits on goods sold.

As customers we are all glad to be able to buy the goods at reduced prices, and as citizens are duly proud of the shops and factories making them. However, the point we wish to bring out is that the saving or cost reduction accomplished has been almost entirely brought about by improvements in the appliances of manufacture and as the result of considerable expenditures. Yet both before and after the accomplishment of these cost reductions there existed a sure method of reducing costs which would not require the expenditure of thousands nor the maintenance of expensive departments.

Labor, material and expense—these are roughly the three components of cost-to-manufacture. In most establishments the first and last items cover the greatest part of manufacturing cost and are subject to considerable fluctuations from year to year. Making up, as they do, the greater part of the cost of most manufactured articles, it is important that they both be studied and carefully watched. We have mentioned the great care taken to increase the productive efficiency of the shop by every means; this increase naturally lowers the expense item when considered in the light of its ratio to unit of output. The efficiency of the labor itself, the ratio between the work done and the wages paid, does not by any means receive the attention it should. That this fact is beginning to impress itself on the thinking public is evidenced by the attention it is receiving in the technical press of to-day; yet there is plenty of evidence that far from enough has been said. For the natural prejudice of manufacturers toward an untried thing must be overcome and the customs and habits of generations must be broken up. Simply stated, our plea is this:

To make a workman do his utmost, there must be adequate incentive. There must be some strongly impelling force, constantly applied, which, like the steady pull of a belt, shall supply the energy and keep up the

speed. This force must in no way partake of the nature of a temporary stimulant. Among such forces, as imparted to workmen by proper sanitary conditions and sympathetic influences are the following:

Sheer good health. (Desire to excel.)

Natural desire to please.

Ambition for further promotion.

Pecuniary reward.

There is nothing definite or tangible about the first three of these forces although their value as efficiency promoters must not be underestimated. Almost everyone answers to the fourth, however, and it will hardly be denied that it is a most powerful force to use for good or evil. It is the incentive of which we should make the greatest use and the one on which we should place the greatest reliance. Yet the different wage payment systems as administered to-day but feebly fulfill the proper conditions and therefore bring but small returns in comparison with that which may be expected from them if properly administered. It may be stated as susceptible of proof that the faulty administration of our wage payment systems in manufacturing establishments is responsible in a very great measure for the prodigal waste of one of the most valuable resources of the nation—its labor and brains. If one believes at all in the law of compensation, and with its tenets vividly in mind analyzes the wage-payment methods of our manufacturing establishments, he will either agree unconditionally to the existence of widespread maladministration—or else be silent. Where encouragement to the more productive workers should be given, one will find discouragement in the form of constant rate-cutting; where the more efficient workmen are necessary and should be attracted by higher wages, and considered a most valuable asset, one will find a sort of blind adherence to a flat-rate above which it is not the employer's policy to go. This widespread custom of stamping out the individuality of the workers is destroying the very teamwork that makes for success and permanence. There does not seem to be any good in expecting to win a boat race in an eight oar shell in which half the crew continually chafes under a knowledge of unfair treatment or is given to understand that neither credit nor reward will be forthcoming if the boat wins. Yet indiscriminate rate-cutting and the uncertainty which that practice leaves in the minds of the factory workers put a "dead weight" into the boat. And "dead weights" have lost many a race.

The Steel Trade and the Crops

The New York Times of October 11 has an exceedingly interesting article on the statement just made by the United States Steel Corporation regarding its shrinking unfilled orders and the contradictory factor of the Department of Agriculture making the best final report on the crops in the nation's history. While the Steel Corporation has before reported a lower total of unfilled orders, it never reported a smaller proportion to its productive capacity than in the statement just made. This presentation shows that the steel trade is at a low ebb. On the other hand, the Department of Agriculture reports an indicated yield of 3,057,424,000 bushels of corn, which is the largest on record and considerably exceeds all expectations. The total wheat yield is 691,769,000 bushels, which runs somewhat

above the yearly average. The oats crop, like the corn crop, is a record breaker, being estimated at 1,096,396,000 bushels. The *Times* remarks that the run of depression in the steel trade now approaches the record and cannot persist unless something is to happen beyond all experience. It continues as follows: "It is, perhaps, within the capacity of human achievement to wreck the promise of prosperity contained in these figures, but it cannot be blamed on Providence this year. There is work in sight for every hand and every wheel, and if they are not kept busy there ought to be a reckoning for whoever spoils the prospect." We heartily agree with this conclusion.

Steel Buyers and Steel Prices

Market reporters for the daily press often draw peculiar conclusions from trade conditions with which they are not familiar. For instance, the sage remark has recently been made by one of these writers that buyers of steel products are not entirely satisfied with the reductions in prices thus far made. The author of that remark evidently misunderstands totally the customary attitude of steel buyers. Under ordinary conditions, such a buyer is not satisfied with any price but endeavors to secure a still lower one. Some will even resort to questionable practices to get the advantage of the seller. A distributor or a manufacturing consumer of steel products differs in this respect from a retail buyer who pays a merchant the price asked for any article without haggling. The large buyer of steel products, however, seldom pays a price willingly, or because he is entirely satisfied with it. He is only likely to express his willingness or his satisfaction when the market is advancing and he is able to find a seller who holds his price down for a special purpose, or who miscalculates the strength of the upward movement, and takes all the orders he can at a rate under those of his trade colleagues. In the steel trade there has never yet been an asking price so low that the buyer has paid it willingly.

The Quebec Bridge Bidders

The names of the bidders on the superstructure of the Quebec Bridge, on which proposals were opened October 1, as furnished by our Toronto correspondent, are as follows: Die Maschinenfabrik of Augsburg and Nürnberg, Germany; Pennsylvania Steel Company, Philadelphia; British Empire Bridge Company, Montreal; St. Lawrence Bridge Company, Montreal. It will take some time to study the different tenders, so as to compare them and ascertain which is the lowest. As the capital required to carry out the work will be scarcely less than \$6,000,000, and as \$500,000 has to be deposited with each proposal, there has been a combination of forces in some of the cases. Thus the British Empire Bridge Company, Montreal, is a recently formed corporation, taking in two English companies—the Cleveland Bridge & Engineering Company of Darlington and the Metropolitan Amalgamated Railway Carriage & Wagon Company of Birmingham. The St. Lawrence Bridge Company represents in this undertaking the Dominion Bridge Company of Montreal and the Canadian Bridge Company of Walkerville, Ont. When the tenders have been examined by the Department of Railways and Canals they will be turned over to the Quebec Bridge Commission, and it may not be until the opening of the Parliamentary session, about the middle of next month, that the contract will be awarded. The whole cost of the bridge

is estimated at \$11,000,000, of which more than half will be expended on the superstructure.

August Exports and Imports of Iron and Steel

As compared with July, exports of iron and steel increased and imports decreased in August, according to the Bureau of Statistics of the Department of Commerce and Labor. The total value of the August exports of iron and steel and manufactures thereof, not including iron ore, was \$17,628,538, against \$16,108,102 in July. The value of similar imports in August was \$3,473,636, against \$3,656,395 in July.

The exports of commodities for which quantities are given totaled 130,877 gross tons in August, against 128,055 tons in July, 120,596 tons in June, 135,344 tons in May, 117,918 tons in April and 124,753 tons in March. The details of the exports of such commodities for August and for the eight months ending with August are as follows compared with the corresponding periods of the previous year:

	August		Eight mos. ending August	
	1910.	1909.	1910.	1909.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	11,652	6,193	70,865	37,975
Scrap	2,003	729	14,952	22,050
Bar iron.....	1,967	936	13,307	8,937
Wire rods.....	1,227	368	15,853	9,699
Steel bars.....	10,104	6,111	68,536	44,721
Rillets, blooms, &c....	2,025	9,309	9,682	84,119
Steel rails.....	24,726	26,739	243,244	166,306
Iron sheets and plates.	7,756	6,211	69,130	44,838
Steel sheets and plates.	18,784	9,605	110,432	62,897
Structural iron and steel	15,177	7,254	104,210	60,960
Barb wire.....	6,301	5,265	48,681	44,914
Wire	10,810	5,685	60,949	56,303
Cut nails.....	882	724	4,700	6,108
All other nails, including tacks.....	883	1,020	6,272	5,299
Pipe fittings.....	16,730	15,847	105,140	99,124
Totals.....	130,877	101,996	945,971	754,250

The imports of commodities for which quantities are given totaled 36,878 gross tons in August, as compared with 42,326 tons in July, 31,010 tons in June, 45,021 tons in May, 51,438 tons in April and 57,150 tons in March. The details of the imports of such commodities for August and for the eight months ending with August are as follows compared with the corresponding periods of the previous year:

	August		Eight mos. ending August	
	1910.	1909.	1910.	1909.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	20,029	10,422	159,947	87,222
Scrap	1,882	2,125	62,271	4,377
Bar iron.....	3,709	1,380	28,703	9,944
Billets, bars and steel forms n.e.s.....	4,513	1,335	32,108	10,419
Sheets and plates....	688	282	4,760	2,225
Tin andterne plates.	4,072	5,070	51,082	40,041
Wire rods.....	1,925	1,238	14,523	7,606
Totals.....	36,878	21,852	353,394	161,834

The imports of iron ore in August were 282,949 gross tons, against 248,810 tons in July, 193,415 tons in June, 240,833 tons in May, 206,135 tons in April, this year, and 209,855 tons in the month of August, 1909. The total importations of iron ore for the eight months ending with August were 1,791,025 gross tons, against 954,718 tons in the corresponding period of last year and 424,963 tons in the corresponding period of 1908. Of the August imports of iron ore, 144,730 tons came from Cuba, 38,647 tons from Sweden, 37,536 tons from Spain, 19,330 tons from Canada and 42,706 tons from other countries.

The total value of the exports of iron and steel and manufactures thereof, not including ore, for the eight months ending with August, was \$130,148,125, against \$100,953,952 in the corresponding period of last year. Similar imports were, respectively, \$27,759,534 and \$18,175,130.

Buffalo's Industrial Exposition

The third annual Industrial Exposition of Buffalo manufactures is now being held in that city under the auspices of the Chamber of Commerce and Manufacturers' Club, at the old Armory of the 65th Regiment on Broadway, which has been converted into an exposition hall. The period of the exposition is from October 3 to 15, and it is proving to be the most successful of the local expositions. There are 140 separate exhibits of local manufactures, 60 of them being working or demonstrating exhibits under power.

The electrical display exceeds in scope and beauty anything attempted since the Pan-American Exposition in 1901; both the exposition hall illumination and the street illumination on Broadway between Main street at Lafayette Square and the exposition, a distance of seven blocks, being exceedingly brilliant. The most effective and spectacular feature of this display is the flight (or apparent flight) of a huge ball of red electric lights passing from the top of a tall and graceful pagoda festooned with electric Japanese lanterns in Lafayette Square and ricocheting down the center of Broadway through numerous rings of fire to the top of an imposing arch in front of the exposition building, the effect being produced by the successive lighting and shutting off of current on a large number of duplicate balls of red lights erected between the beginning and end of the course.

On Cleveland Day, October 8, a delegation 200 strong from the Cleveland Chamber of Commerce attended the exposition, and on Detroit Day, October 15, it is expected that an equally large number will be in attendance from the Detroit Board of Commerce. Rochester and Erie have also sent large delegations to visit the exposition.

Many novel and interesting exhibits are being made. The Buffalo General Electric Company gives an illustrative exhibit of the generating of electric power at Niagara Falls by means of working models of the great electric generating plants there, showing power houses, canals, penstocks, tunnels and turbines in detail, together with the transformer, switchboards, distributing apparatus and cables carrying the current to distant cities. The same company has an extensive exhibit of the domestic uses of electricity. This is designated "the House Electric" and comprises five rooms in which all the household functions are performed by electricity. A modern printery operated entirely by electricity is also shown, including linotype machines, presses and stereotyping room.

Exhibits are made by Rogers Brown & Co. and the Lackawanna Steel Company. In the exhibit of Rogers Brown & Co. a large electric map is shown indicating in electric lights of different colors the location of each of the 40 or more blast furnaces of the company and of its coke ovens, and the different cities in which its sales offices are located. In this exhibit are also shown some remarkably fine and unusual samples of pig iron manufactured in this country and abroad, the local furnaces being largely represented, also samples of the products of English, Scotch, Swedish and German furnaces and iron from China. A number of special and high grade castings made from the company's products and some interesting samples of coke from the Connellsville, Pocahontas, New River and Virginia districts are also in the exhibit, as well as specimens of fluorspar from the Rosiclare mines which are now the largest fluorspar producers in this country.

The Lackawanna Steel Company's exhibit is also exceedingly interesting, a feature being a number of pyramids of highly polished cross-sections of the various products of the company in steel rails, structural shapes, bars and other rolled products, sheet piling, &c. A series of electrically illumined photographs, on glass,

showing the different departments of the company's extensive plant, in operation, is also displayed.

The Western Steel Corporation

Concerning its newly acquired iron ore properties in Nevada, the Western Steel Corporation, Seattle, Wash., gives the following details in addition to what has already appeared in these columns. The properties are in Lyon and Storey counties in Nevada and are known as the Lyon, Hecla, Bear, Planet, Emma, Morning Light, Sunset, Sunrise, Round Hill, North Star and Sheba mines and the Dewey and Norway iron lodes. On the Dewey and Hecla and the Norway iron lodes a hill of iron ore is found which is about 1000 ft. long, 1000 ft. wide and 115 ft. high. A shaft has been sunk 157 ft. in the middle of the hill and ore was found to a depth of 145 ft. Various tunnels have been driven in the development work carried on in the past year. Engineers report 14,000,000 tons of ore in sight, with 39,000,000 tons assured and 139,000,000 tons probable. Reports on the property were made by R. N. Dickman, Alfred Merritt and J. Wells Smith. The ore is a brown hematite, averaging 63 per cent. metallic iron, 0.03 phosphorus and 6 to 7 per cent. silica. The Western Steel Corporation has bought the property as a reserve, without expecting to use the ore immediately. The deposit is 7 miles from the Southern Pacific Railroad, with which it can be connected almost without grade. The ore can be shipped to a point on San Francisco Bay, 225 miles distant, and thence by water to Irondale, where the company's blast furnace is located.

The Western Steel Corporation has started an iron and steel foundry of its own at Irondale and is making castings for its own use, including ingot molds, the latter being cast from metal direct from the blast furnace. Some other hearth steel castings have been made by the company for its own purposes, and the manufacture of steel castings for the market will be undertaken.

Car and Locomotive Orders.—The Maine Central has ordered 500 heater cars from the Laconia Car Company; the Atlantic Seaboard Dispatch, 30 all steel tank cars from the Chicago Steel Car Company; the India Refining Company, 60 tank cars from the American Car & Foundry Company; and the Duluth, Missabe & Northern, 25 refrigerator cars from the Peteler Car Company. Inquiries reported by the *Railway Age Gazette* include 25 box cars for the Richmond, Fredericksburg & Potomac; 40 steel subway cars for the Hudson & Manhattan; 150 freight cars for the Pennsylvania Lines West; 200 refrigerator cars for the Erie (not confirmed); 100 box cars for the Brinson Railway; 400 to 500 steel underframe cars for the Cold Blast Transportation Company. Locomotive orders include 2 for the Tata Iron & Steel Company, 5 for the Chicago Junction and 10 for the Spokane, Portland & Seattle.

The American Boiler Manufacturers' Association is holding its twenty-second annual convention in Chicago this week, the sessions extending from Monday to Thursday. A concurrent meeting of the Supply Men's Association is also being held. The members made a trip to Gary in a special train, to visit the mills of the Indiana Steel Company, and will enjoy other sightseeing trips during the week.

The population of Wheeling, W. Va., is 41,641, as compared with 38,878 in 1900, an increase of 7.1 per cent. The population of Kansas City, Kan., is 82,331, an increase of 30,913, or 60.1 per cent.

The population of Wichita, Kan., is 52,450, an increase of 27,779, or 112.6 per cent.

The Iron and Metal Markets

A Comparison of Prices

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

Oct. 12, Oct. 5, Sept. 14, Oct. 13,

FIG IRON, Per Gross Ton:	1910.	1910.	1910.	1909.
Foundry No. 2, standard, Philadelphia	\$15.75	\$16.00	\$16.00	\$18.50
Foundry No. 2, Southern, Cincinnati	14.25	14.25	14.25	17.75
Foundry No. 2, local, Chicago	16.00	16.25	16.50	19.00
Basic, delivered, eastern Pa.	15.00	15.00	15.00	18.00
Basic, Valley furnace	15.10	15.50	15.75	17.00
Bessemer, Pittsburgh	15.90	15.90	15.90	19.40
Gray forge, Pittsburgh	14.15	14.15	14.15	16.90
Lake Superior charcoal, Chicago	18.25	18.25	18.50	19.50

BILLETS, &c., Per Gross Ton:

Bessemer billets, Pittsburgh	24.00	24.00	24.50	26.00
Forging billets, Pittsburgh	29.00	29.00	29.00	29.00
Open hearth billets, Philadelphia	26.00	26.00	27.00	28.00
Wire rods, Pittsburgh	28.50	28.50	28.00	32.00
Steel rails, heavy, at mill	28.00	28.00	28.00	28.00

OLD MATERIAL, Per Gross Ton:

Steel rails, melting, Chicago	13.50	13.50	13.50	17.75
Steel rails, melting, Philadelphia	13.75	14.00	13.75	18.00
Iron rails, Chicago	16.00	16.00	16.00	20.50
Iron rails, Philadelphia	18.00	18.00	18.00	21.00
Car wheels, Chicago	14.00	14.00	14.00	18.25
Car wheels, Philadelphia	13.75	13.75	13.75	17.50
Heavy steel scrap, Pittsburgh	14.25	14.25	14.50	18.00
Heavy steel scrap, Chicago	12.25	12.25	12.25	16.50
Heavy steel scrap, Philadelphia	13.75	14.00	13.75	18.00

FINISHED IRON AND STEEL,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined iron bars, Philadelphia	1.40	1.40	1.40	1.57
Common iron bars, Chicago	1.35	1.35	1.37½	1.50
Common iron bars, Pittsburgh	1.45	1.45	1.45	1.65
Steel bars, tidewater, New York	1.56	1.56	1.56	1.66
Steel bars, Pittsburgh	1.40	1.40	1.40	1.50
Tank plates, tidewater, New York	1.56	1.56	1.56	1.66
Tank plates, Pittsburgh	1.40	1.40	1.40	1.50
Beams, tidewater, New York	1.56	1.56	1.56	1.66
Beams, Pittsburgh	1.40	1.40	1.40	1.50
Angles, tidewater, New York	1.56	1.56	1.56	1.66
Angles, Pittsburgh	1.40	1.40	1.40	1.50
Skelp, grooved steel, Pittsburgh	1.40	1.40	1.40	1.45
Skelp, sheared steel, Pittsburgh	1.50	1.50	1.50	1.55

SHEETS, NAILS AND WIRE,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	2.20	2.20	2.15	2.30
Wire nails, Pittsburgh*	1.70	1.70	1.70	1.80
Cut nails, Pittsburgh	1.65	1.65	1.65	1.80
Barb wire, Galv., Pittsburgh*	2.00	2.00	2.00	2.10

METALS, Per Pound:

Lake copper, New York	12.87½	12.75	12.87½	13.00
Electrolytic copper, New York	12.75	12.50	12.62½	12.90
Spelter, New York	5.60	5.60	5.50	5.90
Spelter, St. Louis	5.45	5.45	5.35	5.75
Lead, New York	4.40	4.40	4.40	4.37½
Lead, St. Louis	4.27½	4.27½	4.30	4.25
Tin, New York	86.50	86.50	84.80	80.25
Antimony, Hallett, New York	7.87½	7.87½	7.87½	8.30
Nickel, New York	45.00	45.00	45.00	45.00
Tin plate, 100 lb., New York	\$3.84	\$3.84	\$3.84	\$3.74

* These prices are for largest lots to jobbers.

Prices of Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural shapes and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Material.—I-beams and channels, 3 to 15 in., inclusive, 1.40c. to 1.45c. net; I-beams over 15 in., 1.50c. to 1.55c. net; H-beams over 8 in., 1.55c. to 1.60c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.40c. to 1.45c. net; angles over 6 in., 1.50c. to 1.55c. net; angles, 8 in. on one or both legs, less than ¼ in. thick, 1.45c., plus full extras as per steel bar card, effective September 1, 1909; tees, 3 in. and up, 1.40c. to 1.45c. net; tees, 3 in. and up, 1.40c. to 1.45c. net; angles, channels and tees, under 3 in., 1.45c.

base, plus full extras as per steel bar card of September 1, 1909; deck beams and bulb angles, 1.70c. to 1.75c. net; hand rail tees, 2.50c.; checkered and corrugated plates, 2.50c. net.

Plates.—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.40c. to 1.45c., base. Following are stipulations prescribed by manufacturers, with extras to be added to base price (per pound) of plates:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼ in. thick and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot are considered ¼ in. plates. Plates over 72 in. wide must be ordered ¼ in. thick on edge, or not less than 11 lb. per square foot, to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16 in. take the price of 3-16 in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

Gauges under ¼ in. to and including 3-16 in. on thinnest edge	\$0.10
Gauges under 3-16 in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
Gauges under No. 9 to and including No. 10	.30
Gauges under No. 10 to and including No. 12	.40
Sketches (including all straight taper plates), 3 ft. and over in length	.10
Complete circles, 3 ft. diameter and over	.20
Boiler and flange steel	.10
"A. B. M. A." and ordinary firebox steel	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Widths over 100 in. up to 110 in., inclusive	.05
Widths over 110 in. up to 115 in., inclusive	.10
Widths over 115 in. up to 120 in., inclusive	.15
Widths over 120 in. up to 125 in., inclusive	.25
Widths over 125 in. up to 130 in., inclusive	.50
Widths over 130 in.	1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive	.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive	.50
Cutting to lengths or diameters under 1 ft.	1.55

No charge for cutting rectangular plates to lengths 3 ft. and over.

TERMS.—Net cash 30 days.

Sheets.—Makers' prices for mill shipments on sheets in carload and larger lots, on which jobbers charge the usual discounts for small lots from store, are as follows: Blue annealed sheets, Nos. 3 to 8, 1.60c.; Nos. 9 and 10, 1.65c.; Nos. 11 and 12, 1.70c.; Nos. 13 and 14, 1.75c.; Nos. 15 and 16, 1.85c. One pass, cold rolled, box annealed sheets: Nos. 15 and 16, 1.95c.; Nos. 17 and 21, 2c.; Nos. 22 and 24, 2.05c.; Nos. 25 and 26, 2.10c.; No. 27, 2.15c.; No. 28, 2.20c.; No. 29, 2.25c.; No. 30, 2.35c. Three pass, cold rolled sheets, box annealed, are as follows: Nos. 15 and 16, 2.05c.; Nos. 17 to 21, 2.10c.; Nos. 22 to 24, 2.15c.; Nos. 25 and 26, 2.20c.; No. 27, 2.25c.; No. 28, 2.30c. Galvanized sheets, Nos. 13 and 14, 2.45c.; Nos. 15 and 16, 2.50c.; Nos. 17 to 21, 2.65c.; Nos. 22 to 24, 2.85c.; Nos. 25 and 26, 2.95c. to 3c.; No. 27, 3.05c. to 3.10c.; No. 28, 3.20c. to 3.25c.; No. 29, 3.40c. to 3.45c.; No. 30, 3.60c. to 3.65c. Painted roofing sheets, No. 28, \$1.55 to \$1.60 per square. Galvanized sheets, No. 28, \$2.80 to \$2.85 per square, for 2½ in. corrugations. All above prices are f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount 10 days from date of invoice.

Wrought Pipe.—The following are the jobbers' carload discounts on the Pittsburgh basing card on wrought pipe, in effect from October 1:

Butt Weld.

	Steel.	Black.	Galv.	Black.	Galv.
¾, ¼, ½ in.	72	58	68	54	59
¾ in.	75	63	71	59	65
¾ to 1½ in.	79	69	75	65	71
2 to 3 in.	80	70	76	66	72

Lap Weld.

2 in.	76	66	72	62
2½ to 4 in.	78	68	74	64
4½ to 6 in.	77	67	73	63
7 to 12 in.	75	65	71	61
13 to 15 in.	51½			

Butt Weld, extra strong, plain ends, card weights.

¾, ¼, ½ in.	69	59	65	55
¾ in.	74	64	70	60
¾ to 1½ in.	78	72	74	68
2 to 3 in.	79	73	75	69

Lap Weld, extra strong, plain ends, card weight.

2 in.	75	65	71	61
2½ to 4 in.	77	71	73	67
4½ to 6 in.	76	70	72	66
7 to 8 in.	69	59	65	55
9 to 12 in.	64	54	60	50

Butt Weld, double extra strong, plain ends, card weight.

¾ in.	64	58	60	54
¾ to 1½ in.	67	61	63	57
2 to 3 in.	69	63	65	59

Lap Weld, double extra strong, plain ends, card weight.

2 in.	65	59	61	55
2½ to 4 in.	67	61	63	57
4½ to 6 in.	66	60	62	56
7 to 8 in.	59	49	55	45

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Plugged and Reamed.
1 to 1½, 2 to 3 in. Butt Weld (Will be sold at two (2) points lower basing (higher price) than merchant or card weight pipe, Butt or Lap Weld as specified.
2, 2½ to 4 in. Lap Weld (Will be sold at two (2) points lower basing (higher price) than merchant or card weight pipe, Butt or Lap Weld as specified.
The above discounts are for "card weight," subject to the usual variation of 5 per cent. Prices for less than carloads are three (3) points lower basing (higher price) than the above discounts.

Boiler Tubes.—Discounts on lap welded steel and charcoal iron boiler tubes to jobbers in carloads are as follows:

	Steel.	Iron.
1 to 1½ in.	49	43
1½ to 2¼ in.	51	43
2½ in.	53	48
2½ to 5 in.	59	55
5 to 13 in.	61	43
2½ in. and smaller, over 18 ft., 10 per cent. net extra.		
2½ in. and larger, over 22 ft., 10 per cent. net extra.		

Less than carloads to destinations east of the Mississippi River will be sold at delivered discounts for carloads lowered by two points, for lengths 22 ft. and under; longer lengths, f.o.b. Pittsburgh.

Wire Rods.—Bessemer, open hearth and chain rods, \$28.50.

Steel Rivets.—Structural rivets, ¾-in. and larger, 1.90c., base; cone head boiler rivets, ¾-in. and larger, 2c., base; ¾-in. and 11-16-in. take an advance of 15c., and ½-in. and 9-16-in. take an advance of 50c.; in lengths shorter than 1-in. also take an advance of 50c. Terms are 30 days, net cash, f.o.b. mill.

Pittsburgh

PARK BUILDING, October 12, 1910.—(By Telegraph.)

Pig Iron.—Prices on basic have further declined and Bessemer iron is also very weak, with a practical certainty that the quotation of \$15, Valley furnace, could be shaded 25c. or more. We quote basic at \$13.10, Valley furnace. No. 2 foundry is fairly strong at \$14 and gray forge is about \$13.25, both at Valley furnace. We note a sale of 500 tons of No. 2 foundry for November, December and January shipment at \$14, Valley furnace, and 1000 tons of basic for November and December at \$13.10, Valley furnace, or \$14, delivered in Pittsburgh district.

Steel.—New inquiry is confined to small lots up to 200 and 300 tons and reports are current of offerings at low prices. It is stated that Bessemer billets have been offered over the next three or four months at \$23 or less, but the mills absolutely deny making such quotations. The fact is that not enough business is coming out to test the market and what would be done on a firm offer of 5000 to 10,000 tons of billets for prompt shipment in problematical. It is certain, however, that on such an inquiry less than \$24 would be named. Reports are that a Valley steel mill has sold 30,000 to 40,000 tons of Bessemer rod billets to a Western wire concern at a low price. Quotations on steel are nominally as follows: Bessemer 4 x 4 in. billets, \$24 to \$24.50; open hearth 4 x 4 in. billets, \$24.50 to \$25; Bessemer and open hearth sheet and tin plate bars, \$25; forging billets, \$29 to \$29.50, all f.o.b. cars Pittsburgh, Youngstown or Wheeling district.

(By Mail.)

The encouraging features of the market this week are that mail orders this month show an increase over the same period in September, and in some lines, notably pipe, sheets and wire products, the volume of new business is showing decided gains. Aside from the above there is nothing of special interest, the whole market apparently "marking time," waiting for the Interstate Commerce Commission hearings to be over, when it is believed there will be a better buying movement. There is no disposition on the part of the large steel interests to cut prices, and with orders coming in at only about 60 per cent. of rated capacity the way prices are holding up is remarkable. The Carnegie Steel Company is running to about 80 per cent. of ingot capacity, but large steel interests generally are operating at the rate of about 65 to 70 per cent. of capacity. This is being done with practically no help from the railroads in the way of orders. The pig iron market is dull, with prices showing a tendency to seek lower levels on Bessemer and basic. There is some inquiry for next year, but with furnaces asking more money for iron for 1911 delivery buyers are holding back and so far the amount of actual tonnage placed in this district in pig iron for next year is very light. The market on semi-finished materials, such as billets and sheet and tin bars, is being disturbed by offerings of open hearth steel by several of the small outside mills at prices lower than the large interests are inclined to meet. In finished iron and steel the volume of new business is holding up fairly well, but on

some lines specifications are not coming in at a satisfactory rate. Ferrosilicon has reached the lowest price for several years. Coke and scrap also continue dull.

Ferromanganese.—There is not much new business being offered and prices are weak. A sale of 75 to 100 tons for delivery over the next three months is reported at about \$38.50, Baltimore. We quote foreign 80 per cent. at \$38.50 to \$39, Baltimore, the rate to Pittsburgh being \$1.95 a ton.

Ferrosilicon.—This material, being in little demand at present, has reached the lowest prices for several years. One consumer reports buying a small lot at about \$54.50, Pittsburgh. We quote 50 per cent. at \$54.50 to \$55, Pittsburgh. We quote 10 per cent. blast furnace silicon at \$23; 11 per cent., \$24; 12 per cent., \$25, f.o.b. cars Jisco and Ashland furnaces.

Skelp.—There is a fair amount of new inquiry, and local mills report they have entered considerable new business recently. We note a sale of about 1500 tons of grooved iron skelp at about 1.70c., and 2000 tons of sheared iron plates at about 1.80c., Pittsburgh, to a local pipe mill for delivery over the next three months. We quote grooved steel skelp, 1.40c. to 1.45c.; sheared steel skelp, 1.50c. to 1.55c.; grooved iron skelp, 1.75c. to 1.80c., and sheared iron skelp, 1.85c. to 1.90c., all f.o.b. Pittsburgh, usual terms.

Rods.—There is not much new inquiry, consumers being pretty well covered, but specifying at a fair rate against their contracts. The Jones & Laughlin Steel Company has placed its new rod mill at Aliquippa on double turn and has been favored with some nice orders for rods. We quote Bessemer, open hearth and chain rods at \$28.50, Pittsburgh.

Muck Bar.—The muck bar mills of the Wilkes Rolling Mill Company at Sharon, Pa., and the Wheeling Steel & Iron Company at Wheeling, W. Va., were started up last week. The consumption of muck bar seems to be increasing and the available supply in the open market is limited. Prices are firm and we quote best grades, rolled from all pig iron, at \$29 to \$29.50, Pittsburgh.

Steel Rails.—Reports are that the Pennsylvania Railroad engineers are now figuring on the rails required for this system next year. During the years 1904-1909, inclusive, the company is stated to have used for replacing a total of 721,569 tons of rails, an average of about 120,000 tons per year. The Carnegie Steel Company is steadily receiving good orders for standard sections for export, but new business from domestic roads is light. This company will roll about 1200 tons of angle bars on a contract for open hearth rails to be rolled at Ensley. New orders for light rails placed with the local interest are averaging 3000 tons per week or more, and the light rail mill at the Edgar Thomson Works is pretty well booked up for the rest of this year. We quote standard sections of Bessemer rails at \$28, mill, and light rails as follows: 8 to 10 lb., \$32; 12 to 14 lb., \$29; 16, 20 and 25 lb., \$28; 30 and 35 lb., \$27.75, and 40 and 45 lb., \$27, Pittsburgh. We quote steel axles at 1.75c. to 1.80c., and splice bars at 1.50c., at mill.

Structural Material.—Reports that the Fort Pitt Bridge Works of this city had secured the contract for the Long Island track elevation work, about 12,000 tons, are premature. The company is the lowest bidder, but the contract has not yet been placed. If it secures the work, the material will be rolled by the Jones & Laughlin Steel Company. The Bellefontaine Bridge Company, Bellefontaine, Ohio, has taken a contract for four small buildings for the Marion Shovel & Dredge Company, Marion, Ohio, about 300 tons. The American Bridge Company has taken a small bridge for the Hocking Valley and another for the same road was placed with the Mount Vernon Bridge Company. The Pittsburgh Bridge & Iron Company, Rochester, Pa., has a contract for the steel, about 250 tons, for St. Vincent's Hospital, Erie, Pa. Some large projects that will require a good deal of steel are under way, but they are being held up and very little new work is coming out. We quote beams and channels up to 15 in. at 1.40c. in large lots and 1.45c. in small lots, f.o.b. Pittsburgh.

Plates.—The plate market is interested in the report, which has not been officially confirmed, that the Pennsylvania Railroad is about to come in the market for 8000 to 10,000 steel cars. The inquiry has not reached the steel car companies, but it is known that the company has been figuring for some time on the purchase of a large number of cars. The Norfolk & Western is asking prices from the car companies on 500 50-ton steel hopper cars, but, unless prices made are attractive, the road intends to build these cars in its own shops at Norfolk, Va. Bids have been asked on about 2500 tons of plates for a new gas holder at Kansas City, Mo. New business being placed is light, all the mills are badly in need of work, and none of them is operating to more than 60 to 70 per cent. of capacity. We continue to quote ¼-in. and heavier plates in the wide sizes at 1.40c., Pittsburgh, but for delivery at certain points, and in competition with outside mills, slightly lower prices are being

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named in some cases. We quote narrow plates at 1.35c., Pittsburgh.

Sheets.—Considerable new business has been placed in sheets by consumers for delivery over the remainder of this year, and in some cases into first quarter. The new price-lists recently sent out by several of the mills, which are based on 2.20c. for No. 28 black and 3.20c. for No. 28 galvanized, are regarded as minimum of the market. On painted corrugated roofing sheets the new prices are \$1.60 and on galvanized for No. 28 gauge \$2.80 per square for 2½-in. corrugations. It is stated that most of the new tonnage booked has been based on the above prices, except in one or two localities, where about \$1 a ton less has been taken. The mills are now entering more actual orders than for some time. A full schedule of prices on the different gauges of black and galvanized sheets is printed on a previous page.

Tin Plate.—Consumers are specifying at a fairly liberal rate against their contracts, but in certain sections, notably in the Baltimore, Md., district, new specifications are not as active as they were some time ago, due to the partial failure of the tomato crop. All the mills have a good deal of business on their books for the remainder of this year and into the first quarter of next year. Prices are firm and we quote 100-lb. cokes at \$3.60 per base box, f.o.b. Pittsburgh.

Bars.—New demand for soft steel bars is light, but specifications against contracts are coming in at a fairly satisfactory rate. On hard steel bars for concrete reinforcement, local mills report a good demand and specifications quite active. The low prices ruling for iron bars in Chicago and other Western points are disturbing the local market to some extent, reports being that common iron bars are being slightly shaded by mills in this district. On account of these low prices for iron bars a good many former consumers of steel bars will now use iron bars on account of the lower prices at which they can be obtained. We quote soft steel bars at 1.40c. in large lots and common iron bars at 1.45c., Pittsburgh.

Spelter.—New inquiry is light, consumers being pretty well covered. We quote prime grades of Western at about 5.35c., East St. Louis, equal to 5.47½c., Pittsburgh.

Hoops and Bands.—Buying is confined mostly to small lots to cover actual needs, but specifications against contracts are coming in at a fairly satisfactory rate. Prices are quite firm and we quote hoops at 1.50c. in large lots and 1.55c. in small lots; bands, 1.40c. in carload and larger lots and 1.45c. in small lots, the latter subject to extras as noted in the steel bar card, dated September 1, last year.

Cotton Ties.—The business for this year on cotton ties is estimated at about 2,500,000 bundles. The price for October shipment is 77c., and for November shipment 77½c. per bundle, the mills advancing the price ¼c. per bundle each succeeding month.

Spikes.—This trade continues slow, new orders being only for small lots to cover actual needs. The railroads have been buying very few spikes for some time. The demand for small railroad and boat spikes is fair, but in some cases specifications against contracts are being held up. All the makers are badly in need of orders and are running only to partial capacity. We quote standard sizes of railroad spikes at 1.50c. to 1.55c. for Western shipment and 1.55c. to 1.60c. for local trade. We quote small railroad and boat spikes at 1.60c. to 1.65c., base, in carload and larger lots.

Rivets.—The volume of new business is light, consumers placing only such orders as are needed to cover actual wants. Prices continue to be shaded.

Shafting.—New orders are mostly in small lots to cover actual needs, and specifications from the larger consumers, such as the automobile builders and implement makers, are not very satisfactory. None of the shafting makers is able to operate to full capacity. Regular discounts on shafting are 55 per cent. off in carload and larger lots, and 50 per cent. off in small lots, delivered in base territory. On desirable contracts and for large lots 55 and 5 per cent. is being named.

Wire Products.—The demand for wire nails and wire so far this month has shown a considerable increase over the same period in September. One of the leading makers of wire nails started up its plant on double turn last week to take care of its increased orders, the wire nail market being in more satisfactory shape than for some time. The demand for cut nails is also showing some betterment.

Merchant Pipe.—All the makers of iron pipe have issued new cards of discounts which are four points lower than on steel pipe, or, in other words, prices quoted on iron pipe are \$8 a ton higher than on steel. The volume of new business in merchant pipe is holding up well, the demand being heavier so far this month than in the same period in September. No large contracts for line pipe have been placed in the past week and any large projects now under way will likely go over until next year. It is stated that the new dis-

counts on both iron and steel pipe, printed on a previous page, are being maintained.

Boiler Tubes.—The demand for railroad tubes is fairly heavy, one leading maker operating more furnaces on tubes at present than at any previous time this year. The demand for merchant tubes is very dull and only small lots are being placed.

Coke.—There is no improvement in the coke market in demand or prices, and it is evident that more coke is still being made than is needed. A blast furnace interest bought in the past week 15,000 to 20,000 tons of standard grades of blast furnace coke for prompt shipment, at the reported price of \$1.60 per net ton, at oven. There is some inquiry for furnace and foundry coke for delivery in the first half of 1911, but so far little of this business has been closed. We quote standard grades of blast furnace coke for spot shipment at \$1.60 to \$1.65 and for delivery over the remainder of this year at \$1.70 to \$1.75 per net ton, at oven. Standard makes of 72-hour foundry coke for spot shipment are held at \$2.15 to \$2.25 to consumers, and for delivery over the remainder of this year and into the first half of next year \$2.25 to \$2.50 per net ton, at oven, are being quoted. The output of coke in the Upper and Lower Connelville regions last week was 345,390 net tons, an increase over the previous week of about 1300 tons.

Iron and Steel Scrap.—The market is very dull and prices are weak. Bids on the scrap lists of the New York Central, the Pennsylvania Lines west and the Erie Railroad which closed last week, were evidently not attractive to these roads, as very little scrap was secured. Consumers are not inclined to take in more material than needed in the very near future, not being satisfied that bottom has been reached. Sales of 2000 to 2500 tons of assorted heavy steel scrap are reported at about \$14.50 delivered, Monessen, Pa., and also about 1500 tons of bundled sheet scrap at about \$10 a ton at shipping point in the Pittsburgh district. We also note sales of 1200 tons of cast iron borings on the basis of \$8.75 delivered, equal to \$8.15, Pittsburgh. Dealers quote about as follows, per gross ton, for delivery in the Pittsburgh district or elsewhere, as noted:

Heavy steel scrap, Steubenville, Follansbee, Sharon, Monessen and Pittsburgh delivery.....	\$14.25 to \$14.50
No. 1 foundry cast.....	13.75 to 14.00
No. 2 foundry cast.....	12.75 to 13.00
Bundled sheet scrap, at point of shipment.....	10.25 to 10.50
Re-rolling rails, Newark and Cambridge, Ohio, and Cumberland, Md.....	15.75 to 16.00
No. 1 railroad malleable scrap.....	13.50 to 13.75
Grate bars.....	12.00 to 12.25
Low phosphorus melting stock.....	18.00 to 18.25
Iron car axles.....	24.50 to 24.75
Steel car axles.....	21.25 to 21.50
Locomotive axles.....	24.50 to 25.00
No. 1 busheling scrap.....	12.50 to 12.75
No. 2 busheling scrap.....	8.50 to 8.75
Old car wheels.....	14.25 to 14.75
Sheet bar crop ends.....	15.75 to 16.00
Cast iron borings.....	8.25
Machine shop turnings.....	8.75 to 9.00
Old iron rails.....	16.00 to 16.25
No. 1 wrought scrap.....	15.00 to 15.25
Stove plate.....	11.75 to 12.00

Chicago

FISHER BUILDING, October 12, 1910.—(By Telegraph.)

Railroad traffic indicates that business conditions in the West are normal outside the iron and steel trade. The railroads at an average are moving as much business as they did a year ago at this time, and some of the large systems have exceeded all former records of tonnage hauled. Reports of a shortage of cars are becoming more general and large shippers expect more trouble this winter than they have ever had in obtaining cars to keep their business going. Conditions in the coal trade are having considerable effect on the car situation. Railroads, manufacturers and coal dealers are approaching the winter without the reserve stocks of coal which they usually accumulate at this season and the railroads are giving the necessary preference to the movement of coal, using box as well as gondola cars for this traffic. As a result, shippers of other commodities find an unusual shortage of all classes of cars. The railroads allow gondola cars to be loaded for only a short distance beyond the system of the road furnishing the car. In many cases flat cars are being used for shipping steel. Traffic officials estimate that the movement of steel in this territory is fully equal to any former period except last fall, and state that the cars would not be available for shipping if the mills and blast furnaces were all going at full capacity. The car situation will undoubtedly have its effect in the market this winter and may now account to some extent for the firmness in prices. There are no features of interest in the market for finished material. Bar specifications are heavy and shipments of wire products are very satisfactory. Only a few inquiries have appeared for stand-

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and rails for next year and progress is slow in closing large structural contracts. The scrap market is weak, with no active interest on the part of buyers.

Pig iron.—A local independent sheet interest has made an additional purchase of 6000 tons of basic iron, making a total of 26,000 tons purchased recently. A Cleveland furnace will furnish 6000 tons of this purchase, the remainder being divided between Toledo and a local furnace. The shipments from Cleveland and Toledo will be made by water. Two other independent steel interests in this district have been in the market recently and each of them is understood to have purchased about 5000 tons of basic from a local furnace. A sale of 10,000 tons of malleable Bessemer to a local manufacturing interest has been closed the past week, for immediate delivery. The iron was of an unusual analysis and it is understood that one of the local furnaces made the sale from the stock on its furnace yard at a price under \$16. Owing to the unusual analysis, however, the price does not reflect the current market for regular grades. A local foundry has also purchased 500 tons of Jackson Company silvery iron, eight per cent., at a special price. Inquiries for Northern iron are increasing, especially for foundry grades and the local furnaces are moving a considerable tonnage of iron for prompt shipment. Not many sales have been made for Northern iron for next year's delivery as the Northern furnaces are making concessions only on prompt shipment. The Southern market continues quiet, with both the furnace interests and the buyers inclined to defer trading in extended deliveries. An important Southern interest which has refused heretofore to quote any price beyond December, is now offering iron for the first quarter at \$11.50, Birmingham, but another large maker continues to withhold quotations beyond the current quarter. The demand for shipment for this year is very light and supplied principally by Tennessee furnaces at \$11, Birmingham. One sale of 1500 tons at \$11.50 for delivery during the first half is noted, but there have been few transactions of that character in this territory. The following quotations are for October, November and December shipment, Chicago delivery:

Lake Superior charcoal.....	\$18.25 to \$18.75
Northern coke foundry, No. 1.....	16.50 to 17.00
Northern coke foundry, No. 2.....	16.00 to 16.50
Northern coke foundry, No. 3.....	15.75 to 16.00
Northern Scotch, No. 1.....	17.00 to 17.50
Southern coke, No. 1.....	15.85 to 16.35
Southern coke, No. 2.....	15.35 to 15.85
Southern coke, No. 3.....	15.10 to 15.60
Southern coke, No. 4.....	14.85 to 15.35
Southern coke, No. 1 soft.....	15.85 to 16.35
Southern coke, No. 2 soft.....	15.35 to 15.85
Southern gray forge.....	14.60 to 15.10
Southern mottled.....	14.60 to 15.10
Malleable Bessemer.....	16.00 to 16.50
Standard Bessemer.....	17.40 to 17.90
Jackson Co. and Kentucky silvery, 0%.....	19.40 to 19.90
Jackson Co. and Kentucky silvery, 8%.....	20.40 to 20.90
Jackson Co. and Kentucky silvery, 10%.....	21.40 to 21.90

(By Mail.)

Billets.—The market is quiet with occasional inquiries for small lots. Open hearth forging billets on sales of this character are quoted at \$28, base, Chicago.

Rails and Track Supplies.—The Illinois Steel Company booked small orders for standard steel rails last week amounting to a little over 6000 tons. Several Western railroads have made tentative inquiries for next year's delivery but not for a full year's requirements. The demand for light rails is quiet and orders for track supplies are generally in small lots for immediate shipment. We quote standard railroad spikes at 1.70c. to 1.75c., base; track bolts with square nuts, 2.25c. to 2.30c., base, all in carloads, Chicago. Light rails, 40 to 45 lb., \$26; 30 to 35 lb., \$26.75; 16, 20 and 25 lb., \$27; 12 lb., \$28, Chicago.

Structural Material.—The contract for the Lehigh Valley Portland Cement Company's plant at Mason City, Iowa, which will require about 2000 tons of steel, was let to the Worden-Allen Company, Milwaukee. The steel contract for the National Biscuit Company's new plant at Kansas City, about 2200 tons, was let to the Brown-Ketchum Iron Works, Indianapolis. The American Bridge Company booked 150 tons for a head frame for the James J. Burke mines, Salt Lake City. The International Harvester Company's building at Auburn, N. Y., 1600 tons, was let to the Groton Bridge Company. The remarkable run of small orders for fabricated material, which has been a feature of the market for the past summer, is unabated, and each office of the large fabricating companies takes a long list of orders of this character every week. On plain material the important mills are holding firmly, and the only reports of concessions in prices are on light sections of plain material, which are made by smaller mills. We quote plain material from mill, 1.58c. to 1.63c., Chicago; from store, 1.80c. to 1.90c., Chicago.

Plates.—The market is quiet, but specifications are keeping up at a satisfactory rate. The important mills are

holding their prices firm and it is only on narrow plates from smaller Eastern mills that any concessions are reported. The larger companies report that they are apparently getting their share of the business at their regular prices. We quote mill prices at 1.53c. to 1.63c., Chicago; store prices, 1.80c. to 1.90c., Chicago.

Sheets.—There is a fair amount of new business and prices are a little firmer than some time ago. A matter of considerable interest to the trade is the adoption by most of the mills of a new scale of differentials on galvanized sheets. Based on the price of 3.20c., Pittsburgh, for No. 28 galvanized, in carload lots to jobbers, the differentials ruling in the Chicago market are as follows: No. 30, 3.68c.; No. 29, 3.48c.; No. 28, 3.38c.; No. 27, 3.23c.; Nos. 25 and 26, 3.08c.; Nos. 23 and 24, 2.88c.; Nos. 18 to 22, 2.78c.; Nos. 15 to 17, 2.63c.; Nos. 12 to 14, 2.48c.; Nos. 10 and 11, 2.38c. The differentials on black sheets remain unchanged. No. 10 blue annealed sheet are quoted at 1.83c., Chicago, and No. 28 black 2.38c. Prices from store, Chicago, are: No. 10, 2.10c. to 2.20c.; No. 12, 2.20c. to 2.30c.; No. 28 black, 2.85c. to 2.95c.; No. 28 galvanized, 3.90c. to 4c.

Bars.—With many of the mills September was the best month this year in specifications for soft steel bars and October has made a good beginning. In some cases the mills are 60 days behind on their specifications for special agricultural shapes. The hard steel bar mills are getting a fair amount of business, but the bar iron mills continue to receive a very light volume of new orders. No increase is reported in the demand from the railroads. We quote as follows: Soft steel bars, 1.58c.; bar iron, 1.35c. to 1.40c.; hard steel bars rolled from old rails, 1.45c. to 1.50c., all Chicago. From store, soft steel bars, 1.80c. to 1.90c.

Rods and Wire.—Shipments of wire products from the mills during September were unusually heavy in supplying the demand from jobbers and dealers who were replenishing their stocks. The weather has been exceptionally favorable for building field fence and sales of this product this fall have broken all records. There is a fair demand for barb wire and nails. Manufacturing consumers of wire appear to be doing a normal business. Jobbers' carload prices, which are quoted to manufacturing buyers, are as follows: Plain wire, No. 9 and coarser, base, 1.68c.; wire nails, 1.88c.; painted barb wire, 1.88c.; galvanized, 2.18c., all Chicago.

Merchant Steel.—The demand for merchant steel from store has been improving somewhat the past week or two and is on a very satisfactory basis. The mills making special lines of steel are also doing better than those which produce heavy plain material. On special sections for the agricultural trade some of the mills are two months behind on specifications, and the lighter demand from the automobile industry this year will be offset by the growth of the market in other directions.

Cast Iron Pipe.—The Detroit inquiry which was mentioned last week is the only notable one thus far that has appeared for winter shipment. There is a fair run of routine orders for small lots. On current business we quote, per net ton, Chicago, as follows: Water pipe, 4-in., \$27; 6 to 12 in., \$26; 16-in. and up, \$25, with \$1 extra for gas pipe.

Old Material.—The scrap market fails to reflect any notable improvement in the iron and steel industry. The largest buyer of steel scrap is now under a railroad embargo which has stopped deliveries and checked the stronger tone in melting steel which was apparent a week or two ago. The agricultural malleable foundries are busy and are steady buyers of scrap, but the railroad foundries, which represent the largest tonnage, are not in the market. The steel foundries are also light buyers of the grades of material which they favor, and the rolling mills are taking only bargains in the material offered them. An interesting movement in the Chicago market for old material is an effort of the dealers to organize a protective association. The chief object which is advocated is to employ an inspector, who will examine personally all cars rejected by buyers and thus secure a better observance of grades in the Chicago market. There is more trouble over rejections in the scrap trade than any other feature of the business, but large buyers insist that the trouble lies with the shippers rather than with them. It is claimed by leading buyers that 90 per cent of the cars they actually accept could be legally rejected, because they contain material different from the grade or quality that was purchased. The railroads have adopted a uniform classification for their scrap which has proved very successful, and buyers will pay a premium for material shipped by the railroads. The outcome of the proposed association will be watched with interest by dealers as well as buyers. The prices quoted below are for delivery to buyers' works, all freight and switching charges paid. Sellers of scrap usually receive 50c. to \$1 less in this district, owing to high switching charges. Following prices are per gross ton, delivered, Chicago:

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Old iron rails.....	\$16.00 to \$16.50
Old steel rails, rerolling.....	15.25 to 16.75
Old steel rails, less than 3 ft.....	13.50 to 14.00
Relaying rails, standard sections, subject to inspection.....	24.00 to 25.00
Old car wheels.....	14.00 to 14.50
Heavy melting steel scrap.....	12.25 to 12.75
Frogs, switches and guards, cut apart.....	12.25 to 12.75
Shoveling steel.....	11.75 to 12.25

The following quotations are per net ton:

Iron angles and splice bars.....	\$14.00 to \$14.50
Iron car axles.....	19.50 to 20.00
Steel car axles.....	19.50 to 20.00
No. 1 railroad wrought.....	11.75 to 12.25
No. 2 railroad wrought.....	10.75 to 11.25
Springs, knuckles and couplers.....	11.50 to 12.00
Locomotive tires, smooth.....	17.00 to 17.50
No. 1 dealers' forge.....	10.50 to 11.00
Steel axle turnings.....	8.25 to 8.75
Machine shop turnings.....	7.00 to 7.50
Cast and mixed borings.....	4.75 to 5.25
No. 1 busheling.....	10.00 to 10.50
No. 2 busheling.....	8.00 to 8.50
No. 1 boilers, cut to sheets and rings.....	8.50 to 9.00
No. 1 cast scrap.....	12.50 to 13.00
Stove plate and light cast scrap.....	10.75 to 11.25
Railroad malleable.....	11.00 to 11.50
Agricultural malleable.....	10.50 to 11.00
Pipes and flues.....	9.00 to 9.50

The Inland Steel Company's blast furnace at Indiana Harbor, Ind., blew out last week for relining. The company expects to have it in blast again by December 1, having recently made purchases of basic pig iron to cover its requirements in the meantime.

Cleveland

CLEVELAND, OHIO, October 11, 1910.

Iron Ore.—It is estimated that shipments this season will be very little in excess of those in 1909, in spite of the fact that the movement up to October 1 was 5,461,331 gross tons over the corresponding period of last year. Lake shipments in 1909 were 41,683,873 tons. Last year the movement was very heavy after October 1, aggregating 12,044,546 tons. This year it is expected that the October movement will reach about 5,000,000 tons, as compared with 6,273,834 tons shipped in September. The Steel Corporation is nearly through with chartered tonnage and plans to load the last of its own boats by the middle of November. The total movement after November 1 will be very light. We quote prices as follows: Old Range Bessemer, \$5; Mesabab Bessemer, \$4.75; Old Range non-Bessemer, \$4.20; Mesabab non-Bessemer, \$4.

Pig Iron.—The market is very quiet in this immediate territory, but more activity is noted in other portions of the Central West. A local interest reports sales during the week aggregating about 8000 tons, in Michigan, Indiana and western Ohio. This was in lots of 1000 tons and under, both malleable and foundry. Some of the tonnage is for last quarter delivery, but the sales were largely for the first half. Some fair sized inquiries are also pending from the same territory. For delivery through the first half \$14. Valley furnace, for No. 2 foundry, is being more generally quoted, but some producers are unwilling to meet that price, claiming that it is below the cost of production. It is pointed out that furnaces have considerable tonnage on their books for last quarter delivery, taken early in the year, at \$14.50 to \$15.50 for No. 2 foundry, and that they can afford to take on \$14 tonnage to dispose of their surplus output during the last quarter, but that it will be impossible for them to run their plants except at a loss after the first of the year at \$14, with no higher priced tonnage on their books to average up. The consumption is holding up well, as indicated by shipments on contracts, and another encouraging feature of the market is the report that stocks on furnace yards are being slowly decreed. For prompt shipment and the remainder of the year we quote, delivered, Cleveland, as follows:

Bessemer.....	\$15.90
Northern foundry, No. 1.....	\$14.75 to 15.00
Northern foundry, No. 2.....	14.25 to 14.50
Northern foundry, No. 3.....	14.00 to 14.25
Gray forge.....	14.00 to 14.25
Southern foundry, No. 2.....	15.35 to 15.85
Jackson Co. silvery, 8 per cent. silicon.....	19.05 to 19.25

Coke.—There is some demand for spot foundry coke from foundries that have declined to enter into contracts, but most foundries have contracts either for the remainder of the year or through the first half. We quote standard Connellsville furnace coke at \$1.60 to \$1.70, per net ton, at oven, for spot shipment, and \$1.70 to \$1.75 for the remainder of the year. Connellsville 72-hour foundry coke is held at \$2.10 to \$2.25 for spot shipment and \$2.25 to \$2.50 for delivery through the first half.

Finished Iron and Steel.—The demand is light in nearly all lines. Price conditions, however, continue satisfactory, all recent quotations being firmly maintained. While steel bar specifications are quite satisfactory, shipment of

considerable tonnage is being held up. When mills were far behind on deliveries consumers generally specified quite heavily for deliveries three months and more ahead in anticipation of future requirements. The demand for the products of some of these manufacturers has fallen off somewhat, so that their orders for steel have proved to be in excess of their requirements and suspensions of orders have resulted. New orders and specifications are nearly all for small tonnages. With deliveries good on all lines, consumers are allowing their stocks to run low and when material is needed orders are placed for quick shipment. Steel bars and structural material are firm at 1.40c., Pittsburgh, and that price is being shaded on plates for only the narrow sizes. The demand for plates continues light. The demand for small lots of structural material continues fairly active. Fabricators when figuring on work requiring good tonnages are now seldom asking protection on prices from the mills in advance of bids, being willing to take their chances with the market. It is reported that the Mt. Vernon Bridge Company is the low bidder on a county bridge to be built in Zanesville, Ohio, requiring about 2000 tons of steel. The Lake Shore Railroad has received bids for bridge work requiring 250 tons. There is a fairly good demand for sheets. Some contracts are being placed for the remainder of the year at current prices. Prices appear to be firmly maintained at 2.20c. for No. 28 black and 3.20c. for No. 28 galvanized. The demand for iron bars continues light, with prices steady at 1.30c. to 1.40c., at mill.

Old Material.—The market continues very dull and dealers see no indication of an early improvement. Transactions between dealers are about as scarce as sales to mills. Local steel mills are well stocked up and are buying only when decided bargains are offered. Iron mills are buying only in small lots as needed. There is practically no demand from the foundry trade. Railroad offerings the past week are understood to have brought fair prices, bids being based on about the present market quotations. The Norfolk & Western Railroad will close October 13 on about its usual tonnage. Dealers' prices per net ton, f.o.b. Cleveland, are as follows:

Old steel rails.....	\$14.00 to \$14.50
Old iron rails.....	16.50 to 16.50
Steel car axles.....	20.00 to 20.50
Heavy melting steel.....	13.00 to 13.25
Old car wheels.....	14.00 to 14.50
Relaying rails, 50 lb. and over.....	22.50 to 23.50
Agricultural malleable.....	12.00 to 12.50
Railroad malleable.....	13.00 to 13.50
Light bundled sheet scrap.....	9.00 to 9.50

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles.....	\$21.00 to \$21.50
Cast borings.....	5.50 to 6.00
Iron and steel turnings and drillings.....	6.25 to 6.50
Steel axle turnings.....	8.75 to 9.00
No. 1 busheling.....	11.00 to 11.50
No. 1 railroad wrought.....	13.00 to 13.50
No. 1 cast.....	11.50 to 12.00
Stove plate.....	10.50 to 11.00
Bundled tin scrap.....	11.00 to 11.50

Birmingham

BIRMINGHAM, ALA., October 10, 1910.

Pig Iron.—The bulk of the trading during the past week was in pig iron warrants and an aggregate of 10,000 tons of foundry grades was involved in such transactions. These warrants were sold at prices ranging from \$11 to \$11.50, Birmingham, on a No. 2 foundry basis and on one or more round tonnages it is understood that arrangement was for deliveries to extend well into next year. The free iron recently sold is comparatively small in the aggregate, but without having established a new basis for prices. The largest sale of free iron was 1000 tons of No. 4 foundry for prompt shipment. This iron was sold at \$10.50, Birmingham, or at a strictly \$11.50 basis for No. 2 foundry. A lot of 500 tons of gray forge for last quarter shipment was sold at \$10, Birmingham, and lots of 350 and 200 tons each of No. 2 soft brought \$11.50, Birmingham. The demand has come from quite a wide range and all purchases have no doubt resulted from urgent requirements. A number of inquiries for low grades are pending at this time, but with this exception the tonnage soon to be placed is very limited. An increase in the number of inquiries for 1911 deliveries is noted and quotations on such tonnage are fairly uniform. It is understood that a basis of \$11.50 would be acceptable to practically all interests for deliveries through the first quarter, but in view of the increase in stock accumulations it is not improbable that a firm offer for a round tonnage at even lower figures would be accepted by certain concerns. The latest stock reports place the aggregate accumulation at approximately 248,000 tons, or an increase of 9000 tons over the aggregate as of August 1. The tonnage now on hand consists of 61,000 tons in warrant, 45,000 tons of free basic iron and 142,000 tons of free foundry iron. The increase in production indicated October 1, was offset during the past

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week by the blowing out of the furnace of the Williamson Iron Company, which leaves 15 stacks in blast on foundry grades.

Cast Iron Pipe.—No addition of consequence has been made to the tonnage for early letting and this market is at present without features of special interest. The prices at which latest contracts were placed have not been announced and it is understood that some very low figures were submitted, owing to the sharp competition with foreign producers. We quote water pipe as follows per net ton f.o.b. cars here: 4 to 6 in., \$22.50; 8 to 12 in., \$21.50; over 12-in., average \$20.50, with \$1 per ton extra for gas pipe. These quotations are nominal and no doubt subject to shading on large contracts.

Old Material.—This market continues unusually quiet and prices are believed to have weakened notwithstanding the fact that very little trading has been done during the past week. All parties concerned have apparently determined to pursue a conservative course, and as a result accumulations are not increasing on the yards of dealers or consumers. We quote Dealers' revised asking prices as follows, per gross ton f.o.b. cars here, viz:

Old iron axles.....	\$15.00 to \$15.50
Old iron rails.....	13.00 to 13.50
Old steel axles.....	14.50 to 15.00
No. 1 railroad wrought.....	13.00 to 13.50
No. 2 railroad wrought.....	9.00 to 9.50
No. 1 country.....	8.00 to 8.50
No. 2 country.....	7.50 to 8.00
No. 1 machinery.....	9.50 to 10.00
No. 1 steel.....	11.50 to 12.00
Tram car wheels.....	9.50 to 10.00
Standard car wheels.....	10.50 to 11.00
Light cast and stove plate.....	8.00 to 8.50

The furnace of the Williamson Iron Company at Birmingham, Ala., has been blown out for relining.

Repairs are being made to the furnace of the Central Iron & Coal Company at Holt, Ala., and operations will be resumed about November 1.

Cincinnati

CINCINNATI, OHIO, October 12, 1910.

Pig Iron.—The recent excellent crop reports have had no appreciable effect on the iron market. If anything, there has been less activity the past few days. The inquiries coming in are generally considered as being merely feelers, although there are some small lots of iron changing hands. Local agencies are working on an inquiry from the Chicago district for a round lot of high silicon for delivery the remainder of this year. A central Indiana melter wants 3000 tons of Northern foundry No. 2 for first half delivery, and there are a number of requests from local territory covering lots of both Southern and Northern foundry ranging from 100 to 1000 tons. The 6000-ton basic inquiry from southern Ohio which has been pending some time, has not yet been closed. For November and December shipment 1000 tons of Southern foundry No. 2 was sold a Northern manufacturer at \$11 at furnace, which seems to be the ruling price for the remainder of this year. It is reported that a few Southern furnaces are willing to take on business extending into the first quarter at the same price. However, most of them are indifferent about next year's business and quote on inquiries simply as a matter of courtesy and prices named are from \$11.50 to \$12, Birmingham, and over for first half shipment. The Northern iron market is still a little soft and it is stated that a central Indiana melter was able to purchase 1000 tons of foundry No. 2 for first half delivery at a price considerably under \$14.50, Ironton district, for the last quarter of this year, while \$14 is generally quoted. For immediate delivery and for the remainder of the year, based on freight rates of \$3.25 from Birmingham and \$1.20 from Ironton, we quote, f.o.b. Cincinnati, as follows:

Southern coke, No. 1 foundry.....	\$14.75 to \$15.25
Southern coke, No. 2 foundry.....	14.25 to 14.75
Southern coke, No. 3 foundry.....	13.75 to 14.25
Southern coke, No. 4 foundry.....	13.50 to 14.00
Southern coke, No. 1 soft.....	14.75 to 15.25
Southern coke, No. 2 soft.....	14.25 to 14.75
Southern gray forge.....	13.50 to 14.00
Ohio Silvery, 8 per cent. silicon.....	19.20
Lake Superior coke, No. 1.....	16.20 to 16.70
Lake Superior coke, No. 2.....	15.70 to 16.20
Lake Superior coke, No. 3.....	15.20 to 15.70
Standard Southern car wheel.....	25.25 to 25.75
Lake Superior car wheel.....	22.25 to 22.75

(By Mail.)

Coke.—The market is featureless. New business transacted is light and is practically all for shipment before January 1. Prices for spot coke are still weak and in all three fields some immediate shipment furnace coke can be bought around \$1.55 to \$1.60 per net ton at oven. A few sales are recorded at \$1.50. Contract prices on furnace grades run from \$1.65 to \$1.85 and on foundry grades from

\$2.10 to \$2.25, with a premium for some special brands. Spot foundry coke is available around \$2 from some ovens. Contract coke is moving freely, but it is reported that some consumers anticipate a car shortage, and are quietly stocking up as much as can be conveniently carried.

Finished Iron and Steel.—With the exception of rumors of price cutting on the part of some mills, there is nothing interesting in this market. Local agencies deny that 1.40c., Pittsburgh, is being shaded on standard sizes of bars, plates, &c. Business booked is for immediate shipment and there is practically none to be noted for next year's delivery. Warehouse business also is light.

Old Material.—There is yet no sign of early activity in the scrap market. Dealers appear to be buying only bargain lots of scrap and consumers are simply filling their immediate requirements. Prices for delivery in buyers' yards, Cincinnati and southern Ohio, are as follows:

No. 1 railroad wrought, net ton.....	\$12.50 to \$13.00
Cast borings, net ton.....	4.50 to 5.00
Steel turnings, net ton.....	6.00 to 7.00
No. 1 cast scrap, net ton.....	11.50 to 12.50
Burnt scrap, net ton.....	8.00 to 9.00
Old iron axles, net ton.....	17.50 to 18.50
Old steel rails, gross ton.....	14.50 to 15.00
Relaying rails, 50 lb. and up, gross ton.....	22.50 to 23.50
Old car wheels, gross ton.....	12.00 to 13.00
Heavy melting steel scrap, gross ton.....	12.00 to 12.50

Philadelphia

PHILADELPHIA, PA., October 11, 1910.

Notwithstanding easier prices for some brands of foundry iron, a slightly better feeling regarding the pig iron situation prevails. General buying has been a trifle less pronounced, but a few large sales have brought the aggregate somewhat above that of the previous week. There is almost an entire absence of demand for the steel making grades. In finished material, buying continues rather light, with a fair volume of new business being figured on. Prices in practically all grades and classes of rolled products are being well maintained. The old material situation is still in a somewhat uncertain stage. While it is practically certain that the combination buying arrangement of the Eastern mills will be abandoned, details as to what plans will be followed in the future are not available. It is to be noted, however, that one mill formerly in the arrangement is buying heavily in the open market. The movement in coke continues light.

Iron Ore.—The situation is unchanged. No inquiry for next year's supply has developed, consumers being more interested in further postponement or cancellation, if possible, of portions of supplies still to be taken this year. Importations at the port of Philadelphia for the week ending October 8 aggregated 29,313 tons, valued at \$83,063.

Pig Iron.—With the exception of fair-sized lots, placed against inquiries from the Pennsylvania Railroad and several of the cast iron pipe foundries in this district, transactions have been on a rather small scale. The Pennsylvania Railroad placed orders for a large share of its coke iron requirements and something over 1200 tons of charcoal iron, to be delivered at its Altoona shops, at terms not made public. It is understood to be still in the market for a portion of its requirements for the last quarter of the year. There has been a better movement in pipe making iron; some 5000 tons of Northern iron were taken by one concern, while several thousand tons, understood to be part Northern and part Southern iron, the latter at \$10, Birmingham, basis for forge iron, were taken by another interest, and upward of 1000 tons was taken by a third interest. These sales were all for last quarter delivery, and it is understood that several consumers are in the market for early 1911 requirements. The general run of smaller foundries are buying less actively, due to a certain extent to the fact that they have purchased recently on a more liberal basis. There has, however, been a fair business done in lots ranging up to a few hundred tons, in some instances at prices which show a further concession. Some standard brands of eastern Pennsylvania No. 2 X foundry can now be openly done at \$15.75, delivered, with No. 2 plain at \$15.25, delivered, certain sellers having decided to accept business at that basis, although others still maintain the \$16 basis for No. 2 X, for shipments during the remainder of the year. In instances deliveries are permitted to extend into the first quarter, but as far as strictly first quarter deliveries are concerned, sellers appear to be still holding off, although buyers would place business at the present level of prices. In Virginia foundry grades \$13.25, furnace, seems to be the ruling price for both No. 2 X and No. 2 plain foundry, equal to \$16 to \$16.25, delivered here, according to destination. Very little business has, however, been done. Outside of low grade iron, very little Southern iron has been sold in this territory. The available supply of low grade iron in the South is reported as being well cleaned up and sellers in this district stick pretty closely to the \$11.50, Birmingham, basis

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for No. 2 foundry. Forge iron shows little activity; several lots have been sold to the pipe foundries at close to \$14.75, delivered, but no interest is taken in the market by the rolling mills. There is practically no demand for the steel making grades. Eastern steel mills have heavy stocks of basic iron on their yards and continue to curtail shipments. Basic is nominally quoted at \$15, delivered, although in a trade deal some 1500 tons were taken by one miller at a lower figure. Very little business has been done in low phosphorus iron, small lots moving at unchanged prices. The following range of prices about represents the market for standard brands, delivered in buyers' yards in this vicinity, for shipment during the remainder of the year and, in a few instances, extending into the first quarter of 1911:

Eastern Pennsylvania, No. 2 X foundry	\$15.75 to \$16.00
Eastern Pennsylvania, No. 2 plain	15.25 to 15.50
Virginia, No. 2 X foundry	16.00 to 16.25
Virginia, No. 2 plain	16.00 to 16.25
Gray forge	14.50 to 14.75
Basic	15.00
Standard low phosphorus	22.50

Ferromanganese.—No inquiry has developed in this territory, sellers nominally quoting \$39, Baltimore, for 80 per cent., for delivery extending through the first half of next year.

Billets.—Transactions have been confined to small lots for early deliveries. Large consumers still keep out of the market, taking up immediate requirements rather than placing any tonnage for extended delivery. With current orders and specifications against previous contracts, mills in the East keep going at slightly over half of their normal capacity. Open hearth rolling billets are quoted at \$26 to \$26.50, according to quantity, delivered in this vicinity. Forging billets are quoted at \$28, minimum, at Eastern mill, the usual extras for high carbons and special sizes being added.

Plates.—Current orders have been in somewhat smaller volume, and mills have but little tonnage on their books. While some fairly good propositions have recently been figured on, it will be some time until many of them develop into orders. Prompt deliveries are available on practically all classes of material. Prices are being firmly held, 1.55c. being the minimum for ordinary plates in carload lots, delivered in buyers' yards in this vicinity.

Structural Material.—While proposals for several fair sized propositions in bridge and building work will be opened this week, the general run of business is irregular and current orders are mostly of a miscellaneous character. Mills are pretty well fixed with orders as far as the near future is concerned, but will require more business than has recently been placed to maintain their present rate of activity for any length of time. Prices, however, are being well maintained, 1.55c., delivered here, being the minimum quotation for plain shapes delivered in this territory.

Sheets.—A very fair proportion of day to day business is coming out, and the majority of the mills in this district have more business on their books than for some time. Individual orders, however, have not been large and the same urgency for prompt delivery prevails. Prices are unchanged, Eastern makers naming the following range of prices for prompt ordinary business: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 and 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Bars.—Mills note a falling off in specifications against old orders, while the new business offered is principally in small lots for prompt delivery. As a rule mills are not operating much over half their capacity and there is pretty sharp competition for what little tonnage is offered, although there does not seem to be much tendency to further shade prices, which range close to 1.40c., delivered, as a minimum, for refined iron bars, with steel bars firm at 1.60c. to 1.65c., delivered.

Coke.—With contracts covering any material requirements largely placed, the market has drifted into one in which small lot sales make up the bulk of the business. Transactions are largely confined to foundry grades for early delivery, prices for which are firm at \$2.25 to \$2.50 per net ton, at oven. There has been little demand for furnace coke, which for spot delivery is quoted at \$1.60 to \$1.65 and for forward shipment \$1.65 to \$1.85, at oven. The following range of prices per net ton is quoted for deliveries in this territory:

Connellsville furnace coke	\$4.00 to \$4.15
Foundry coke	4.50 to 4.75
Mountain furnace coke	3.60 to 3.75
Foundry coke	4.10 to 4.35

Old Material.—While the abandonment of the present buying arrangement of the Eastern steel mills, on advice of the Government, will neither be confirmed nor denied by those interested, it is to be noted that one of the mills heretofore connected with the arrangement has been quietly making purchases in the open market and has recently taken on 20,000 tons of heavy melting steel, the major portion of

which was purchased during the past week. Another outside mill has purchased 2000 tons, the prices ranging from \$14.25 down to \$14 for No. 1 steel. Outside mills now offer \$13.75, delivered, while the associated buyer is understood to be offering \$13.50, delivered, for No. 1 steel, without bringing out any business. It is rumored that another plan may be adopted in connection with the former buying arrangement of the steel mills, but this lacks confirmation. Considerable interest is being shown in the railroad lists, on which bids have gone in during the past few days but on which awards have not yet been announced. In the rolling mill grades of scrap business continues dull and in some lines not enough has been done to establish quotations. The following range about represents bids and offers for deliveries in buyers' yards, eastern Pennsylvania and nearby points, carrying a freight rate from Philadelphia ranging from 45c. to \$1.35 per gross ton:

No. 1 steel scrap and crops	\$13.75 to \$14.25
Old steel rails, rerolling	16.00 to 16.50
Low phosphorus	19.00 to 19.50
Old steel axles	20.00 to 20.50*
Old iron axles	23.50 to 27.50*
Old iron rails	18.00 to 18.50*
Old car wheels	13.75 to 14.25
No. 1 railroad wrought	16.25 to 16.75
Wrought iron pipe	13.00 to 13.50
No. 1 forge fire	12.00 to 12.50
No. 2 light iron	7.50 to 8.00
Wrought turnings	8.75 to 9.25
Cast borings	9.25 to 9.75
Machinery cast	14.00 to 14.50
Railroad malleable	13.50 to 14.00
Grate bars	12.00 to 12.50
Stove plate	10.00 to 10.50

* Nominal.

Buffalo

BUFFALO, N. Y., October 11, 1910.

Pig Iron.—Sales for the past week have been considerably better than for a number of weeks, most of them covering deliveries for a short period in 1911 and being chiefly for foundry grades. The total, however, is not large, only a comparatively small proportion of the heavy aggregate of recent inquiry having materialized into orders. A majority of buyers still maintain a hesitating attitude relative to covering for future needs. In basic the inquiry has not been active; one inquiry for 5000 tons was received from Chicago, for delivery before the close of navigation. From the furnacemen's point of view quotations now being made, as shown by current schedules, are on a basis exceedingly favorable to the consumer. In many instances they are now so low as to be a losing proposition to many furnaces. We quote as follows for the remainder of the year, f.o.b. Buffalo:

No. 1 X foundry	\$14.75 to \$15.25
No. 2 X foundry	14.50 to 14.75
No. 2 plain	14.25 to 14.50
No. 3 foundry	14.00 to 14.25
Gray forge	14.00 to 14.25
Malleable	14.75 to 15.25
Basic	14.75 to 15.25
Charcoal	18.50 to 19.00

Finished Iron and Steel.—The last few days have shown considerable improvement over the conditions prevailing for a number of weeks, and a fair volume of business for current requirements in finished products has been placed. A few jobbers are placing contracting in a limited way for deliveries until the end of the year, and there is a little inquiry for contract quotations for the first quarter of the new year. Most of the business transacted, however, is on the immediate requirement basis, and it is not anticipated that there will be any extended buying movement until after election. Business in steel bars, round edge tire, toe calk steel and spring steel has been especially good during the week, and the inquiry on bars for concrete reinforcement has been active and a fair tonnage placed. A considerable tonnage is still in abeyance and may possibly go over until spring before placement. Prices on steel bars and plates are firm and some agencies report a larger percentage of orders placed at 1.45c., Pittsburgh, than a week ago. Prices for cold rolled steel are not quite as steady as they have been. Export business continues good both for contract and current sale. One interest reports a large bar contract recently closed and much business pending. Canadian buyers do not seem to hesitate to contract for their future requirements. In fabricated structural lines business is rather quiet, although a number of structural projects are shortly to be in the market for figures. Plans will be out in about two weeks for the Washington street market building to be erected by the city of Buffalo, which will require about 700 tons of structural steel, and bids are to be received the latter part of this week for the Haberstro store and office building on Broadway, Buffalo, about 150 tons. C. A. Hager, North Collins, N. Y., who was awarded the general contract for the J. N. Adam Memorial Hospital, to be erected by the city of Buffalo at Perrysburg, N. Y., is con-

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sidering bids for the structural steel, 200 tons, and Larkin & Sangster, St. Catharines, Ont., contractors for the new Erie Canal locks, a bridge and other canal structures at Lockport, N. Y., are receiving sub-bids for the 1700 tons of structural material required. The Buffalo Structural Steel Company has taken the contract for the fabrication and erection of the 1160 tons of steel for the new Utica Hotel, Utica, N. Y.

Old Material.—The local demand in most lines has been exceedingly limited during the week, mills in this district being pretty heavily stocked. Cast scrap is about the only grade in which there was any activity. Such movement as there was in melting steel and other lines, with the exception of cast scrap, was to outside markets. The prices shown in the accompanying schedule are largely nominal and based on other markets, with freight allowed. We quote as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel.....	\$12.00 to \$12.50
Low phosphorus steel.....	17.00 to 17.50
No. 1 railroad wrought.....	14.00 to 14.50
No. 1 railroad and machinery cast scrap..	13.25 to 13.50
Old steel axles.....	17.50 to 18.00
Old iron axles.....	23.00 to 23.50
Old car wheels.....	13.50 to 14.00
Railroad malleable.....	13.00 to 13.25
Boiler plate.....	10.00 to 10.50
Locomotive grate bars.....	10.50 to 11.00
Pipe.....	10.50 to 11.00
Wrought iron and soft steel turnings..	6.75 to 7.00
Clean cast borings.....	5.75 to 6.00
No. 1 busheling scrap.....	11.25 to 12.00

St. Louis

St. Louis, October 10, 1910.

The bank clearings for the past week show a satisfactory degree of activity in local trade, as they exceed by nearly \$5,000,000 the total for the corresponding period last year. The growing shortage of cars confirms the report that the idle car surplus is now at the lowest level since last spring, notwithstanding the heavy increase in car equipment and extensive repairs, which has been furnishing a large amount of business for local foundries and supply houses. Traveling men who are coming in from extended trips state that they found the foundrymen, as a rule, quite busy.

Coke.—Though most of the larger consumers in St. Louis territory have contracted for wants covering the usual period, there is considerable inquiry for coke from medium to small buyers, one leading house reporting inquiries aggregating 2500 to 2800 tons ranging from one to twenty cars. A leading broker reports an inquiry for 2000 tons. The market is steady at \$2.35 to \$2.50 per net ton for best selected Connellsville, 72 hour foundry coke and \$2.00 to \$2.25 for second best, f.o.b. oven.

Pig Iron.—With most of the leading sellers the past week ruled very quiet. Among the sales reported are the following: A leading broker effected the sale of 1200 tons of 4 to 5 per cent. silicon to an Illinois stove company, for shipment October to March, and to various parties 1000 tons of Southern and Northern gray iron for shipment over the first half of 1911. Another office mentions a sale of 1000 tons of charcoal iron for delivery over the last quarter of 1910 and into the first quarter of 1911. A feature of the situation is that the demand for the most part is for special iron and there is not much inquiry for foundry grades. All offices report scattering inquiries, together with some small sales, and merchant sellers are also having a fair demand from small outside buyers, both by mail and through traveling salesmen. It is claimed by some that stocks at the South are being reduced, but this report is modified by other iron men who assert that it is only a change of ownership from furnacemen to merchant sellers. There is but little improvement in the tone of the market and irregularity in prices still prevails, making it difficult to quote accurately. In general, the leading sellers are offering good brands of \$2 Southern foundry for prompt or for shipment to January 1 at \$11, Birmingham, though some houses name \$11.50 for remainder of the year delivery. Some sales are being made for the first half of 1911, but they are mostly on private terms effected through acceptance of firm bids, with several furnacemen refusing to quote for that delivery. Where price is quoted, \$11.50 is named, with \$12 as the price asked by some leading interests. Valley iron is quoted at \$14, and southern Ohio \$14.50, f.o.b. furnace, for shipment over the remainder of the year.

Old Material.—There is no improvement to report concerning the demand for scrap iron and steel. There is, however, more inquiry, but buyers and sellers are apart on prices, the dealers seeking to hold the market up. A leading house reports the purchase for its own account of 1000 tons of relaying rails. The following offerings by the railroads were closed out the past week, bringing fair prices: St. Louis & San Francisco, 500 tons; Wabash, 800 tons.

We quote dealers' prices as follows, per gross ton, f.o.b. St. Louis:

Old iron rails.....	\$14.00 to \$14.50
Old steel rails, reolling.....	13.50 to 14.00
Old steel rails, less than 3 ft.....	12.25 to 12.75
Relaying rails, standard sections, subject to inspection.....	24.50 to 25.00
Old car wheels.....	13.00 to 13.50
Heavy melting steel scrap.....	12.00 to 12.50
Frogs, switches and guards, cut apart..	12.25 to 12.75

The following quotations are per net ton:

Iron fish plates.....	\$12.00 to \$12.50
Iron car axles.....	18.50 to 19.00
Steel car axles.....	18.50 to 19.00
No. 1 railroad wrought.....	12.00 to 12.50
No. 2 railroad wrought.....	11.00 to 11.50
Railway springs.....	11.00 to 11.50
Locomotive tires, smooth.....	16.50 to 17.00
No. 1 dealers' forge.....	10.00 to 10.50
Mixed borings.....	5.00 to 5.50
No. 1 busheling.....	10.50 to 11.00
No. 1 boilers, cut to sheets and rings..	9.00 to 9.50
No. 1 cast scrap.....	11.00 to 11.50
Stove plate and light cast scrap.....	9.00 to 9.50
Railroad malleable.....	9.00 to 9.50
Agricultural malleable.....	8.50 to 9.00
Pipes and flues.....	9.50 to 10.00
Railroad sheet and tank scrap.....	9.00 to 9.50
Railroad grate bars.....	8.00 to 8.50
Machine shop turnings.....	7.75 to 8.25

The Fruin-Colnon Construction Company has been awarded the contract for the main structure of the new Washington avenue railroad station, which will cost \$150,000.

The Eagle Packet Company has ordered two new boats to be built by the Howard shipyards at Jeffersonville, Ind. The machinery for the boat for the St. Louis and Alton trade, which will cost \$50,000, will be built by the St. Louis Iron & Machine Company, and the boilers by the John Rohan & Sons Boiler Company. The other boat, to be built later, is intended for the Cape Girardeau trade.

The German Iron Market

BERLIN, September 29, 1910.

The new Pig Iron Syndicate yesterday gave out its price list for the first quarter of 1911. Hematite was fixed at 70 marks; No. 1 foundry at 66 marks and No. 3 at 64 marks. Luxemburg No. 3 foundry was fixed, by agreement with the Luxemburg dealers, at 52 marks. Representatives of the syndicate met here on Monday and arranged terms with the dealers in the various sections of the country. At the same time conferences were held here with furnace owners of the Luxemburg-Lorraine group which resulted in an agreement as to Luxemburg grades of iron; this will prevent any collisions on prices between the Essen syndicate and the furnaces in question. The new prices quoted above denote a rise, except for Luxemburg iron. Yesterday the Siegerland ore mines adopted an advance of 10 marks per carload of 10 tons on ores, making the price 165 marks for brown iron ore and began taking orders for 1911. The Band Iron Association has also adopted the advance of 2.50 marks foreshadowed in last week's letter. The new price is 140 to 145 marks, according to quantities bought; and this price, it is asserted, is the same for export as for the home trade.

In contrast with this stronger tendency of prices in Germany, some reductions of prices were reported from Belgium at the end of last week. Basic steel bars were reduced 2 shillings and bar iron 1 shilling per ton for export at Antwerp. A detailed press report on the Belgian market this week, however, denies that there is any general weakening there. It is asserted, on the contrary, that the general situation continues to improve, notwithstanding the price cuts referred to.

The Steel Syndicate has this week given out a report on the state of business in rails, structural shapes and semi-manufactured steel. Home business in the last named, says the report, has continued satisfactory, and the foreign market shows a better buying tendency, notwithstanding the less favorable news from America and the labor difficulties in England. In heavy steel rails the syndicate has taken some good orders from abroad. The increase in the amount of orders booked, which is described as considerable, is in the main due to better foreign business. The business in grooved rails, as usual at this season, has become more quiet; foreign competitors are fighting sharply for the outside market. The foreign demand for mining rails has lost nothing of its previous briskness, but Belgian competition continues to keep prices down. In structural shapes business has been upon the whole satisfactory; there has been an increase of 90,000 tons in the orders on the books since July. Foreign business in this specialty begins to grow more quiet as the season advances.

A review of the hardware trade mentions an improvement within a month. In most sections of the trade orders

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have been received in larger quantities than hitherto, and the buying movement is described as now being very active. On the other hand, prices are still too low in general to satisfy manufacturers, and in only a few cases have advances been put into force. In builders' hardware the situation appears to be unchanged; but in furniture makers' supplies a considerable improvement is mentioned. From the Solingen cutlery trade a moderate improvement in home business is reported, but export business continues dull. The razor manufacturers continue to complain of the effects of the American tariff law in restricting their trade. The manufacturers of side arms in that region are doing a lively business for export. In knives and scissors the trade is scarcely changed. Business in the Solingen specialties is good, but prices are too low.

Machinery shops are in part happy over the fact that the Prussian railroad administration has just placed orders for above 500 locomotives to be delivered within a year.

New York

NEW YORK, October 12, 1910.

Pig Iron.—While no change for the better is indicated in the developments of the past week, conditions are at least not worse. Consumers who have been following the market closely note that it has yielded little of late. They believe that a certain amount of iron might safely be bought for next year at this level, but see no indication that they will have to pay more later in the year, and therefore hold off. A number of inquiries which have had little or no publicity have been up for three or four weeks, but have not yet resulted in sales. The leading pipe interest, which inquired for 4000 tons of No. 4 iron and 2000 tons each of No. 2 and No. 3 for an Eastern plant, has bought a portion of these amounts. Gray iron foundries here and there have bought in lots of several hundred tons each, and a pipe foundry which recently bought for next year has been in the market for some smaller lots for this year. An inquiry for 3000 tons of basic iron has come from a central Pennsylvania steel plant. Sellers have some hopes of better buying in November, as foundry operations are generally maintained on the scale of recent months and contract deliveries are being taken in most cases. We quote for tidewater deliveries as follows: Northern No. 1 foundry, \$15.75 to \$16; No. 2 X, \$15.25 to \$15.75; No. 2 plain, \$15.25 to \$15.50; Southern No. 1 foundry, \$15.75 to \$16; No. 2, \$15.25 to \$15.50.

Finished Iron and Steel.—The outlook for new business in structural shapes is not quite as promising as was indicated a week ago. While the larger fabricating plants have work ahead which will last well into and in some cases through the winter, projects which will come into the shops in early spring are not developing as could be wished. The railroads have considerable requirements shaped up, but these have not yet come to the estimating stage, and railroad engineers are quite indefinite as to when they will ask for figures. A few railroad jobs have been placed in the past week, including 2000 tons for Philadelphia & Reading track elevation at Port Richmond. The New York Central has placed 1200 tons with the American Bridge Company, but this in reality is a revival of part of an old contract. The 2000 tons on which the New York Central received bids recently for viaduct work in connection with its New York terminal construction will probably go to a Pittsburgh fabricator. The Pennsylvania Railroad has let an overhead bridge at Greensburg, Pa., to the American Bridge Company, and the latter will also build a small bridge for the Lehigh Valley. Levering & Garrigues have taken a contract for the Oppenheim, Collins & Co. store on West Thirty-fourth street, New York, 800 tons, and for a loft building on West Thirty-sixth street, 500 tons. The International Harvester Company's new building at Auburn, N. Y., 700 tons, went to the Groton Bridge Company. The contract for the Crown Cork & Seal Company's warehouse at Highlandtown, near Baltimore, Md., 800 tons, was awarded to Dietrich Bros., Baltimore. Among work in prospect are a hotel at New Haven, Conn., requiring 1800 tons of steel, and a highway bridge at Superior, Wis., which will take 2000 tons. The plans for the large bridges over the Willamette River, Oregon, are nearly ready. About 15,000 tons of steel will be required. The official announcement concerning the Quebec Bridge bids confirms the general supposition that four countries competed—the United States, Canada, Germany and England—one bid coming from each. The award is likely to be delayed for some time and as yet no details of the bids are available. The plate trade is quiet. The domestic movement in bar iron is moderate, but some good export business has developed. Bar iron prices are easy, but nominally unchanged. Quotations continue as follows: Plain structural material, plates and steel bars, 1.56c. to 1.61c., and bar iron, 1.45c. to 1.50c., all New York.

Cast Iron Pipe.—A feature of the market in this commodity is the increased inquiry from private buyers, especially for spring delivery. Some offices have had a larger volume of this kind of inquiry for the past two weeks than for a long time previously. Large water and gas companies are negotiating for a considerable tonnage for spring delivery, and it is understood that a few contracts have been placed. Public lettings are few, and buying for fall delivery is now of small proportions. Carload lots of 6-in. are quoted at \$23.50 to \$24 per net ton, tidewater. Prices on large lots for spring delivery are held at a higher range than would be quoted for this fall.

Old Material.—For a few days last week a fair degree of activity characterized the scrap market. Sales were made of moderate lots of heavy melting steel and wrought scrap, while some of the local foundries purchased rather good quantities of cast scrap. For the past two or three days, however, the demand has been light and buyers generally appear to have lost interest. Although announcement is made that the combined purchasing arrangement of eastern Pennsylvania steel companies has been abandoned, no effect has yet been observed in the local market. If any inquiries are being received for several steel companies they are closely guarded. Relaying rails are exceedingly quiet. Dealers' quotations, per gross ton, New York and vicinity, are as follows:

Rerolling rails.....	\$12.75 to \$13.25
Old girder and T rails for melting....	11.50 to 12.00
Heavy melting steel scrap.....	11.50 to 12.00
Relaying rails.....	19.00 to 20.00
Standard hammered iron car axles....	22.50 to 23.00
Old steel car axles.....	17.50 to 18.00
No. 1 railroad wrought.....	14.00 to 14.50
Wrought iron track scrap.....	12.50 to 13.00
No. 1 yard wrought, long.....	12.75 to 13.25
No. 1 yard wrought, short.....	11.75 to 12.25
Light iron.....	5.00 to 5.50
Cast borings.....	6.00 to 6.50
Wrought turnings.....	6.50 to 7.00
Wrought pipe.....	11.00 to 11.25
Old car wheels.....	12.00 to 12.50
No. 1 heavy cast, broken up.....	12.50 to 13.00
Stove plate.....	9.50 to 10.00
Locomotive grate bars.....	9.50 to 10.00
Malleable cast.....	12.00 to 12.50

Metal Market

NEW YORK, October 12, 1910.

THE WEEK'S PRICES

		Copper.		Lead.		Spelter.	
		Copper.	Electro.	New York.	St. Louis.	New York.	St. Louis.
Oct.	Lake.	lytic.	Nominal.	4.40	4.27½	5.60	5.45
6....	12.75	12.50	"	4.40	4.27½	5.60	5.45
7....	12.75	12.50	"	4.40	4.27½	5.60	5.45
8....	12.80	12.60	"	4.40	4.27½	5.60	5.45
10....	12.87½	12.75	"	4.40	4.27½	5.60	5.45
11....	12.87½	12.75	"	4.40	4.27½	5.60	5.45
12....	12.87½	12.75	"	4.40	4.27½	5.60	5.45

The holiday to-day was generally observed in the metal trade and when business closed last night spot tin in New York was effectively cornered. This condition has existed all the week and prices have been purely nominal. The copper market is stronger. Lead and spelter remain unchanged.

Copper.—The report of the Copper Producers' Association, issued October 7, equaled the best expectations. The statistics, which appear elsewhere show a decided decrease of stocks. The showing was so good that the market immediately responded with some active buying at an advance of ¼c. The London market has been advancing all the week, but both consumers and sellers in this country acted more conservatively. There was no attempt to inflate prices. Most of the demand was for prompt and November shipment, which indicated that many consumers who were not in actual need of the metal had been waiting to see which way the market would turn. When the market opened on Monday most sellers were quoting ¼c. higher than on Saturday and the advanced price was well maintained all the week. Most sellers are reluctant about taking orders for delivery beyond November 15, as they are figuring that the close of lake navigation, which may occur about that time, will have some effect on the market. Electrolytic copper is now 12.75c. and lake is strong at 12.87½c. The European market is apparently on a good footing, as indicated by the following extract from the latest report of Henry R. Merton & Co., Ltd., London: "The consumption, particularly in Europe, is, however, at an exceptionally high rate and prospects for its continuance are very promising. Manufacturers are constantly securing fresh work, but betray no eagerness to cover their requirements of refined copper so long as the markets show no signs of activity and prices do not tend upward. As soon as any change in this respect is in sight—and indications are not wanting—we may expect a very substantial buying movement on the part of the trade." The London market closed yesterday with best selected copper selling at £60 5s.

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Pig Tin.—Spot tin in New York is so effectively cornered that prices during the week have been largely nominal. The little trading that has been done has been largely between dealers and was of a speculative nature. Bids at 37½c. made on the New York Metal Exchange yesterday failed to find sellers, and it is hard to tell what the actual market is. It is said, however, that spot tin is held a great deal higher than conditions warrant, and if consumers are able to hold out another week or so they will be able to buy the metal cheaper. It is expected that the shipments by next Saturday's steamer from London will be heavy, and some New York dealers who are close to the situation are advised by their London connections that they will at least amount to 1000 tons. The arrival of this metal may relieve the situation. The London market closed yesterday with spot tin selling at £163 15s. and futures £159 15s.

Tin Plates.—The demand for tin plates continues good in this market and the price for 100-lb. coke plates is \$3.84.

Lead.—Lead is a little firmer in East St. Louis, where the current price of 4.27½c. was being shaded last Friday and Saturday. The New York market is dull and stagnant but prices are being held very firmly at 4.40c.

Old Metals.—Inquiry has increased, but dealers' selling prices are unchanged, as follows:

	Cents.
Copper, heavy cut and crucible.....	12.25 to 12.50
Copper, heavy and wire.....	11.50 to 11.75
Copper, light and bottoms.....	10.75 to 11.00
Brass, heavy.....	8.00 to 8.25
Brass, light.....	6.75 to 7.00
Heavy machine composition.....	11.25 to 11.50
Clean brass turnings.....	7.75 to 8.00
Composition turnings.....	9.00 to 9.50
Lead, heavy.....	4.05 to 4.20
Lead, tea.....	3.80 to 3.95
Zinc scrap.....	4.15 to 4.25

Spelter.—The call for spelter is not very good, but prices are being well maintained. The few sales that are being made in New York are for spot shipment from East St. Louis, as stocks are still scarce here and both producers and dealers show some reluctance about carrying any great amount of spelter in the New York market. Some sellers are taking 5.62½c. for spelter for delivery in New York, but it can be bought for 5.60c.

Antimony.—There is so little trading in antimony that prices are entirely nominal. Cookson's is 8.15c.; Hallett's, 7.87½c.; Chinese, 99½ per cent. guaranteed, 7.40c. to 7.50c.; Hungarian grades can be bought at anywhere from 7.20c. to 7.30c., according to the brand. These prices might be shaded.

Metals, St. Louis, October 10.—Lead is quiet at 4.25c. to 4.27½c.; spelter is dull and quoted at 5.37½c. to 5.40c., both East St. Louis. Zinc ore is quoted at \$42 to \$43 per ton, Joplin, base. Tin is sharply higher and quoted at 37.35c. per pound; antimony (Cookson's), 8.50c.; lake copper, 13.22½c.; electrolytic, 13.05c., all at St. Louis. The demand for finished metals for the past week was lighter than the previous week.

Metals, Chicago, October 11.—The copper market is firmer and the metal is in good demand owing chiefly to figures of production and stocks which are very favorable to the producing interests. Tin has taken another erratic flight upward and Chicago houses are selling small lots at

40c. The reports of lower for lead are not confirmed in this market, as only a slight concession from running quotations can be obtained on orders for 50-ton lots. Spelter is firm but buyers have been able to do 5.40c., East St. Louis, equal to 5.45c. Chicago. We quote Chicago prices as follows: Casting copper, 12½c.; lake, 13c., in carloads, for prompt shipment; small lots, ¼c. to ¾c. higher; pig tin, carloads, 37½c.; small lots, 40c.; lead, desilverized, 4.35c. to 4.40c., for 50-ton lots; corroding, 4.60c. to 4.65c., for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 5.45c. to 5.50c.; Cookson's antimony, 10½c., and other grades, 9c. to 10c.; sheet zinc is \$7.50, f.o.b. La Salle, in carloads of 600-lb. casks. On old metals we quote for less than carload lots: Copper wire, crucible shapes, 12½c.; copper bottoms, 10½c.; copper clips, 12c.; red brass, 11¼c.; yellow brass, 9c.; light brass, 6c.; lead pipe, 4¼c.; zinc, 4¼c.; pewter, No. 1, 25½c.; tin foil, 30c.; block tin pipe, 33c.

Iron and Industrial Stocks

NEW YORK, October 12, 1910.

Firmness coupled with light transactions has again been the characteristic of the stock market. Some stocks have shown quite important advances, such as International Harvester common, General Electric and Chicago Pneumatic Tool. A conspicuous exception, however, was Sloss-Sheffield common, which sharply receded with rumors of a reduction in the dividend. The range of prices on active iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chalm., com..	9¼-10¼	Pressed St., pref..	96-96½
Allis-Chalm., pref..	32¼-34¼	Railway Spr., com.	34-34½
Beth. Steel, pref..	58¼-58¾	Railway Spr., pref..	99
Can. com.....	8¼-8½	Republic, com....	31¼-33
Can. pref.....	68¼-70¼	Republic, pref....	93-94
Car & Fdry, com..	48-50¼	Sloss, com.....	51-56
Car & Fdry, pref..	114¼-115½	Pipe, com.....	16
Steel Foundries... 43-43½		U. S. Steel, com..	68¾-71¾
Colorado Fuel.... 32¼-34¼		U. S. Steel, pref..	117½-118¾
General Electric.. 147-152½		Westinghouse Elec.	70-73
Gr. N. ore cert.... 56¼-57¾		Va. L. C. & C....	50-56
Int. Harv., com... 98¼-103¼		Am. Ship, com....	79
Int. Harv., pref..	121	Chl. Pneu. Tool... 38¾-43	
Int. Pump, com... 42-43		Cambria Steel.... 41¾-42¾	
Int. Pump, pref..	84¾-85	Lake Sup. Corp... 24-24½	
Locomotive, com... 36¾-38¾		Pa. Steel, pref....	109-109½
Locomotive, pref..	103-104¼	Warwick.....	11
Nat. En. & St. com.	16¾-17¾	Crucible St., com..	12¼-12¾
Pressed St., com..	33¼-34¾	Crucible St., pref..	77-78

Dividends.—The Youngstown Sheet & Tube Company, Youngstown, Ohio, has declared a quarterly dividend of 2 per cent.

The American Rolling Mill Company, Middletown, Ohio, has declared a quarterly dividend of 1½ per cent. on the preferred and 3 per cent. on the common stock, payable October 15. This is an increase of ½ per cent. on the common stock. In 1907 this company paid a stock dividend of 33½ per cent. The company has a funded debt of only \$1500, secured by 18 shares of the preferred stock, which is a 6 per cent. cumulative security. The company has an authorized capital of \$800,000 preferred and \$3,700,100 common stock. Of the preferred stock \$765,000 is outstanding, while all of the common is outstanding but \$100.

Customs Decisions

Cast Iron Grinders

In sustaining a contention raised by Thomas Prosser & Co., New York, the Board of United States General Appraisers holds that under the terms of the tariff act of 1909, cast iron grinders, which have been finished by machinery after the completion of the casting process, are dutiable under the provisions of paragraph 147, as iron castings advanced in condition subsequent to casting. It is held that the phrase "but not made up into articles" will not operate so as to exclude a finished casting, but applies to such as are made into or form a part of something else.

The conclusions reached by the board are due to the classification imposed by the Collector of Customs at New York on so-called grinding disks upon which duty was assessed at the rate of 45 per cent. under the provision in the act of 1909 for articles in chief value of metal. It was claimed by the importers that the merchandise is entitled to entry under the provisions of paragraph 147, at the rate of 8-10 of 1 cent a pound,

plus 2-10 of a cent a pound. This claim the general appraisers uphold. The decision says:

Unless these articles are excluded by reason of the words above underscored [paragraph 147, of the act of 1900] they would be dutiable as claimed under the said provision. We do not believe that the articles are excluded. The new provision covers castings of iron which have also been chiseled, drilled, machined, or otherwise advanced "if not made up into articles," irrespective of the fact that by such process of chiseling, &c., the castings be ready for use as a wheel or a disk, or anything else, for it is still only a casting chiseled, drilled, or machined, and nothing more. If we are to exclude articles because ready for use then it is impossible to say what would be left to fall within the paragraph. "If two or more castings are fitted or united to make an article, or something be added to complete the casting into a completed article, then there would be reason to exclude such merchandise from the paragraph in question. A finished casting is not excluded, whereas a casting made into something else is. The protest is sustained."

Joseph T. Ryerson & Son, Chicago, contemplate carrying a stock of specialties and machinery at Seattle, Wash., where they have had a branch office for the past four months.

The Machinery Markets

While railroad lists are not in evidence in the machinery market, the railroads are buying in small quantities for replacement. Some orders have been placed by railroad interests in the New York market during the last week, and Philadelphia also reports buying from that source. The announcement last week that the Boston & Maine Railroad would spend \$10,000,000 for improvements has given the New England trade some encouragement. Export trade is good in most machinery centers. In Pittsburgh the market is irregular, but on the whole sales of machine tools and general shop equipment are highly satisfactory. In Detroit many new enterprises are being planned, and this condition has resulted in increased inquiries. The market is steadily improving in Chicago, and country shops are liberal customers in that market at present. In Milwaukee manufacturers of motors are having trouble getting enough equipment ahead to make prompt shipments. There is increased activity on the North Pacific Coast and in San Francisco, where many firms report September the best month in the year. There is some talk in the trade about concessions in machine tool prices, but this is mostly among prospective users. Machine tool builders are holding their prices firm and no break is looked for. The trade is eagerly looking forward to the annual meeting of the Machine Tool Builders' Association, which is to be held in New York, October 25 and 26.

New York

NEW YORK, October 11, 1910.

The machinery trade has greatly improved in New York during the last two weeks and good orders are being placed for small lots. Two large steel mills have placed some orders in this market the last week, principally for blacksmith shop equipment, and both the Pennsylvania and the New York Central Lines have been giving out some scattered orders for machine tool equipment. Inquiries are coming before the trade in decidedly better volume and many of them are of a nature to indicate that they will result in business in the near future. Manufacturers of power apparatus whose business fell off noticeably last month are now taking a more optimistic view of the situation and there are reports that inquiries for power equipment for new enterprises have come forward during the week in good volume. Notwithstanding the fact that there are no lists of any size before the trade the outlook is encouraging, as a number of enterprises which will call for the purchasing of machinery promise to materialize very soon.

Foundrymen who cater principally to the machinery trade in making iron and steel castings note an improvement in business, and machinery manufacturers who are taking faith in the future and making up machines for stock are ordering more liberally than inquiries made a month ago presaged.

The Casein Company of America, 11 Pine street, New York, which makes a specialty of manufacturing by-products of milk, is building a plant at Hagarstown, Md., which will be one of the largest plants of its kind in the country. The company has secured a site of 2 acres and is erecting a building equipped for handling milk and cream by modern methods and will make over skimmed milk into by-products. Considerable special machinery will be purchased, in addition to a battery of three 300-hp. boilers. The Casein Company operates 54 plants throughout the United States.

The Duplex Metals Company, 149 Broadway, Singer Building, is making an addition to its works at Chester, Pa., of a one-story building, 50 x 70 ft., where the company will establish its main offices. The company will retain an office and showroom at its present address in New York and will also establish branch offices in St. Louis, Mo., and Portland, Ore.

The Foster Falls Company, Roanoke, Va., has been incorporated, with a capital stock of \$100,000, to build a hydro-electric plant to operate mining plants of the Virginia Iron, Coal & Coke Company, Bristol, Va. The water power will be developed at Foster Falls, on New River, Va., and it is estimated that the company will be able to develop from 3000 to 4000 hp. Henry K. McHarg, 40 Wall street, New York, is president; John B. Newton is vice-president and J. W. Cune secretary-treasurer. The two latter are of Roanoke, Va.

The Niagara Machine & Tool Company, Buffalo, N. Y., has commenced work on the extensive blacksmith and iron machine shop of brick and steel to be added to its new plant at Northland avenue and the New York Central Railroad Belt Line Railroad.

The United States Metal Desk Company has been incorporated at Utica, N. Y., by J. Ellsworth Stille, E. J. Warner and S. M. Barney of that city, with a capital stock of \$10,000, and will engage in the manufacture of metal furniture. Arrangements are being made for plant and equipment.

The Buffalo Box Factory Company will build a large two-story brick addition to its plant on Babcock and Scoville streets and the Pennsylvania Railroad. The new building will be devoted to the manufacture of corrugated paper shipping cases. Considerable new machinery will be required, some of it special orders for the principal portion of the requirements have already been placed.

The Rutland Transit Company will erect and equip a new Elevator of steel and concrete at Ogdenburg, N. Y., to replace the elevator recently destroyed by fire. Storage capacity, 500,000 bushels, cement bins 76 ft. high; surmounted by steel working cupola, making the total height of 165 ft. Estimated cost, \$350,000.

The St. Lawrence International Electric Railroad & Land Company, Alexandria Bay, N. Y., R. M. Martin, superintendent, will install additional equipment for electric lighting purposes in its power plant, and will soon purchase one 400-hp. Corliss engine and one 200-kw. General Electric generator with other accessories necessary.

The Norwich Pharmacal Company, Norwich, N. Y., will erect and equip a five-story chemical building 50 x 150 ft., with power house of brick and structural iron construction.

The Ansco Company, manufacturer of photographic apparatus and supplies, is erecting a factory building on Charles street, Buffalo, N. Y., to be 60 x 320 ft., four stories, with two four-story wings 26 x 40 ft. of brick and steel construction. A considerable equipment of machinery will be installed.

The Binghamton Motor Car Company, Binghamton, N. Y., has let contract for a two-story fireproof garage and machine shop, 66 x 115 ft.

Business Changes

The plant of the Falls Rivet & Machine Company at Cuyahoga Falls, Ohio, where power, transmission and general machinery is manufactured, has been taken over by Theophilus King and associates and will be conducted under the corporate name of the Falls Clutch & Machine Company. The Kent, Ohio, plant of the Falls Rivet & Machine Company, where rivets, bolts, nuts and washers are manufactured will continue in the hands of the Falls Rivet & Machine Company and will be conducted by Edwin Seedhouse and associates.

Chicago

CHICAGO, ILL., October 11, 1910.

Dealers report a continued moderate improvement in the demand for machine tools. There are no large buyers in the market, but there is an increase in the country trade and in inquiries from manufacturers in this territory who represent the most satisfactory branch of the market. An interesting feature of the trade is the number of sales made to country machine shops. Some of these sales are on a cash basis, but occasionally there are old-fashioned deals in which the seller takes a chattel mortgage for a part of the purchase price. This improvement in the country trade is undoubtedly due to unusually favorable agricultural conditions. The weather has been ideal for maturing the corn crop, creating quality and quantity in the yield and altogether the value of agricultural products has established a new record in this country. This fact has attracted a good deal of attention from machinery dealers who think that it assured a good foundation for business conditions the

THE MACHINERY MARKETS

coming year. There is a fair demand for second-hand tools. Railroad buying is unfortunately absent from the market and the trade has not fully recovered from the loss of automobile business.

The Atchison, Topeka & Santa Fé Railroad is not in the market at the present time for any machine tools, excepting an occasional requisition from the mechanical department. An official of the company states that reports that this company is in the market for an extensive list of tools are misleading.

The movement to secure more careful attention to contracts is looked upon with a great deal of interest among Chicago dealers. Cases are too frequent, especially during a reaction in the market such as we have had the past six months, when buyers try to evade their obligations to take machines which they have purchased. In a case of this kind the unscrupulous buyer generally sets up unjust claims when the machine is shipped to him. He may claim that the manufacturer did not make delivery exactly at the time agreed, or that some attachment to the machine is not satisfactory, or any kind of a claim that will make trouble and give him an excuse to evade prompt payment. It is not always possible for the machine tool builder to make shipment exactly at the moment which is mentioned when an order is taken. Contracts usually give the manufacturer the benefit of any unusual difficulties which delay the completion of an order, and when business is active the buyer never raises any question over a delay of a few weeks. As the dealer operates on a very small margin these misunderstandings are often very expensive to him.

The Chicago Consolidated Brewing & Malting Company, Chicago, is receiving estimates on boilers, stokers and piping for its brewery located in the western section of the city.

Philadelphia

PHILADELPHIA, PA., October 11, 1910.

The market recovers very slowly; in some few instances there has been a slightly better volume of business reported, but the general demand continues irregular. A few more orders have been booked by merchants, in instances for heavier tools, but the character of the business is still largely confined to single tool propositions. No new lists of any importance have come out. There is a scattered demand from the railroads; the Pennsylvania has inquiries out for a 36-in. lathe, while the Baltimore & Ohio is asking for several drill presses and a planer. There is still nothing encouraging in sight in the way of general equipment purchases by either the railroads or industrial establishments, and the trade scarcely expects any pronounced movement on the part of such buyers until after the turn of the year. With general trade conditions still quiet, prospective purchasers of tools are taking a conservative view of the situation and are not placing orders, although in a number of instances propositions have been under consideration for some little time. While there is a better demand for moderate horsepower engines, builders report that orders close up very slowly and bookings recently have not been of an important character. Special tool and machinery builders also note a decline in the demand for the various classes of special equipment made, although in some instances there is a fair volume of business under negotiation. Export trade still drags.

Builders of machinery and general equipment are, for the greater part, less actively engaged. Old orders on hand are being gradually cleaned up and new business does not come in at a rate sufficiently large to equal that completed. There has been little actual curtailment in operation, however, as builders anticipate a better demand before a great while, and have, in quite a few instances, been working in stock orders, which have heretofore been extremely light.

Little change is to be noted in the foundry situation; the demand for machinery castings is light, although a fair volume of general business is coming to the jobbing foundries. The demand for steel castings continues irregular.

The Albert Schade Company, manufacturer and merchant in steam supplies, has purchased a building, 2528 to 2538 North American street, which will be used as its general office, store and warehouse for heavy fittings, valves, &c., and to which it will remove from its present location, 56 North Second street, about November 1. The company is not at present in the market for any machinery equipment, having its various specialties manufactured by outside concerns, but may take up the manufacture of some of its lines at the new location in the future.

The Light Mfg. Company, Pottstown, Pa., which will shortly ask for bids on a new foundry building, states that it will hardly be in a position to take up the matter of equipment for the foundry until early next spring.

Ballinger & Perrot, engineers, are taking revised bids for a six-story concrete manufacturing building, 58 x 100 ft., which the Leo Nieson Company proposes to erect at the northeast corner of Twelfth and Race streets.

Scott & Williams, Inc., manufacturers of knitting machinery, are adding one floor, 45 x 100 ft., to one of their buildings which will be used for assembling and erecting hosiery machinery. Considerable additional equipment has been purchased for installation in the new addition. They are comparatively busy on special knitting machinery for hosiery and underwear, but are doing little on the regular run of knitting machines. The plant is being operated on full time, and the outlook for a good fall season is considered favorable.

The Eagle Iron Works, Wilkes-Barre, Pa., has, it is stated, purchased a site for the erection of a new plant in the immediate vicinity of that city. Particulars regarding the proposed improvements are not available at this time.

The Screw Cutting Company of America, maker of power lead and feed screws, has been reorganized and is now under the direct management of Joseph W. Bramwell, who is vice-president and general manager. There have also been changes made in the shop and department management, as well as the rearrangement of equipment for the general betterment in connection with manufacturing. Mr. Bramwell is well known in this city, having been connected in an engineering capacity for some time with the Reible Bros. Testing Machine Company and the Philadelphia Machine Tool Company.

The Reading Iron Company, Reading, Pa., has completed its new No. 6 mill at Seventh and Laurel streets, in that city. The machinery, which will enable it to produce wrought iron pipe of the largest sizes, has been tested and the mill will be put in operation at an early date. In its Scott foundry department it is very busy, having under way the construction of a number of sugar mills and cotton presses, as well as general machinery. Foundations are being prepared for additional equipment for its own use, including among other tools a heavy lathe.

The Di-el-ite Mfg. Company, manufacturer of rheostats, insulating joints, dimalites, &c., has removed from its former location, 4901 Stenton avenue, to Armat and Lena streets, where it has 17,000 sq. ft. of floor space for manufacturing purposes, three times as much as at the former location. This concern has abandoned its New York offices, formerly located at 120 Liberty street, and now transacts all its business at its local headquarters.

The Main Belting Company is taking bids for a two-story addition, 17 x 95 ft., to be erected as an extension for general manufacturing purposes of its plant at Thirteenth and Carpenter streets.

Bids will be taken by W. Hunter, chief engineer of the Philadelphia & Reading Railway Company, for work of construction, under contract No. 22, comprising masonry and embankment between Somerset street and Trenton avenue, and under contract No. 23, for bridges ready for ballast, between the same streets. These are appurtenant to the work of abolishing grade crossings on its Port Richmond branch in this city.

New England

BOSTON, MASS., October 11, 1910.

Trade continues rather dull, with some signs of improvement. The Bosch Magneto Company has awarded contracts for a large amount of equipment for the new shops at Springfield, Mass., the orders coming through German dealers, the business apparently having been transacted across the water. The United States Motors Company has placed some orders for the Alden Sampson plant at Pittsfield, Mass., and the General Electric Company has done some buying of equipment for its works in the latter city. The announcement of the great repair shops of the Boston & Maine Railroad, to cost \$2,500,000, in addition to the running repair shop already provided for at West Somerville, means the culmination of plans, the fulfillment of which has been awaited for some years. No possibility of further delay exists. Industry generally varies to wide extremes in the degree of prosperity. Improvement is generally looked for all along the line.

The Boston & Maine Railroad will build immediately repair shops to cost equipped \$2,500,000. The appropriation has been made and no possibility of delay exists. The engineers are at work on the plans, which, however, have not reached the point where details are available. The General Manager's office makes the official statement that both locomotive and car repair shops will be included in the plant, which will be located in the immediate vicinity of Boston. The effort will be made to secure absolutely modern works, with every facility for handling the road's increasing rolling

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stock. The list of machinery requirements will be a very long one. The money is a part of \$10,000,000 just appropriated by the board of directors, which is now under the control of the New York, New Haven & Hartford Railroad. The new management plans to extend the policy so successfully carried out on the New Haven system to the new properties.

The improvements will call for large buying of structural steel and for some rail purchases. New bridges will be built over the Saugus River, the Piscataqua at Portsmouth, N. H., and Fore River, Portland, Maine. The strengthening of bridges in a large way to stand the strain of heavier equipment will be carried out on the White Mountain, Worcester, Nashua & Rochester and Southern divisions, and on the western section of the Fitchburg division. The Worcester, Nashua & Rochester division will be double tracked from Thayer to Nashua. The repair shops at East Fitchburg, Mass., will be equipped for electric power, which will be purchased from a local company. New rolling stock will include 100 locomotives, 50 each of passenger and freight; 300 passenger cars and a 100-ton steam wrecking train. New freight houses will be built at Peabody, Mass.; Berlin, N. H., and at Rutherford avenue, Charlestown, Mass., and additional freight yard facilities will be created at West Lynn, Mass. The electrification of the Hoosac Tunnel, a costly undertaking, is not included in the appropriation.

The F. E. Wells & Son Company, Greenfield, Mass., is building two one-story concrete additions to the pipe tool department. A machine shop building is 64 x 96 ft., and a building for boiler room and blacksmith shop, 32 x 60 ft.

Additions to general manufacturing plants of New England include the following: Lewiston Bleachery & Dye Works, Lewiston, Maine, dye works, 60 x 200 ft., two stories; Hurley Estate, Lynn, Mass., factory building, 50 x 70 ft., three stories; Taylor, Bramley & Co., Chicopee, Mass., addition to textile mill.

The Stockbridge Machine Company, Worcester, Mass., has brought out a new 16-in. back geared shaper, containing various new features, notable among them being the application of the milling machine principle in attaching the cross rail to the column.

The Beaton & Corbin Mfg. Company, Southington, Conn., manufacturer of ceiling and floor plates, will erect a three-story building, 30 x 44 ft., for office and shipping room.

M. I. Smith, Bristol, Conn., manufacturer of hardware, has tentative plans for the erection of a new factory, 40 x 75 ft., two stories, and a boiler house, 31 x 32 ft., but nothing definite has been decided as to building.

H. G. Shepard & Sons, New Haven, Conn., manufacturer of carriage and automobile woodwork, will build an addition 28 x 78 ft., to be devoted to boiler and engine room and to manufacturing space, containing woodworking machinery.

The Blakeman Mfg. Company, Inc., Naugatuck, Conn., has been incorporated with a Connecticut charter to manufacture gas and electric fixtures of all sorts, with factory in Naugatuck. N. A. Olson is the president, C. W. Thompson, secretary and treasurer, F. A. Johnson, manager, and F. R. Blakeman, superintendent.

The Connecticut River Power Company has purchased from the Metropolitan Water Board all power generated at the Wachusett Reservoir dam, Clinton, Mass., and will use the additional unit in connection with its power system, which furnishes electric current to Worcester and Fitchburg, Mass., and other cities and towns. The State of Massachusetts has appropriated \$125,000 for the establishment of the power station, which will develop between 2500 and 3000 hp. The reservoir furnishes water to the city of Boston and surrounding cities and towns which comprise the Metropolitan district. Over 100,000,000 gal. a day pass through the aqueduct in which the water wheels will be installed. The contract runs for five years. The matter is of much importance to Worcester, as the company's supply of power is made more secure, and the American Steel & Wire Company, Bradley Car Works and other industries depend upon it for large units.

The Cabot Mfg. Company, Topsham, Maine, will build mills for the Pejepscot Paper Company, to cost \$175,000, including the water wheels, but not the pulp making machinery. The plant will supply pulp for the Cabot Company's paper mills.

Cincinnati

CINCINNATI, OHIO, October 11, 1910.

Irregular conditions prevail with the machine tool builders here. Some are complaining that business is very dull, while others are receiving a fair number of orders and are able to keep their forces working on full time. Orders received are from the general trade and are not confined to any

particular section of the country. Railroad buying is still extremely light, although a few scattered orders from this source are reported. Some few shops have been compelled to lay off part of their help, but are keeping in close touch with the men thus suspended, as it is generally thought every manufacturer in the city will need a full force before the fall season is over.

Dealers in machinery fittings and supplies continue to enjoy a fairly satisfactory business, and some of them in the manufacturing end of this line are very busy.

The foundries are running along about as usual. One week they will start out with sufficient requisitions on hand to keep them active the entire week, and probably the next Monday will find them with only two or three days' melt, when there is a scuffle to get enough work to keep busy the remainder of the week. This does not apply to a few of the foundries that have contracts which keep them operating practically all of the time.

The new five-story steel and concrete factory of the Eagle Mfg. Company in Cumminsville suburb, Cincinnati, is nearing completion and will be under roof before November 1. The company manufactures special tools and washing machines.

The Carbon Products Company, Cincinnati, has been incorporated, with \$100,000 capital stock, to manufacture carbon brushes. Clay B. Steel, the principal incorporator, has headquarters at the Palace Hotel, Cincinnati.

Patrick Farrell, contractor and builder, Second National Bank Building, Cincinnati, has been awarded contract by the Baltimore & Ohio Railroad Company for the construction of several buildings at Chicago Junction, Ohio. They embrace a freight transfer house 24 x 800 ft.; a saw shop 25 x 112 ft.; blacksmith shop 25 x 100 ft.; a supply building 25 x 100 ft., with a 200-ft. platform; scale houses, yard offices, &c., all one story and of mill construction. Work will be commenced at an early date. Mr. Farrell is also just finishing up a very large power house job for the same railroad at Lorain, Ohio, which is of concrete and brick construction.

The American Seeding Machine Company is making some extensive additions to its plant at Springfield, Ohio. An imported French cupola is included in the list of new equipment being installed.

The O. J. Warman Aluminum Foundry & Machine Company, whose plant is in Madisonville, Cincinnati suburb, has incorporated with \$15,000 capital stock. No immediate additions to its factory are contemplated.

Plans for the proposed new plant of the United States Electrical Tool Company, which will be erected on the Mount Hope road, Cincinnati, have been drawn up by Architects Slocemyer & Ihorst. The new building will be two stories, 87 x 180 ft., of brick and steel construction.

The Director of Public Safety, City Hall, Cincinnati, will open bids October 21 for furnishing and delivering a boiler with all attachments for Engine No. 20 of the Fire Department.

Contract for erecting the new foundry of F. E. Myers & Brother, Ashland, Ohio, has been awarded to Schell & Baker of Mansfield, Ohio. The building will be of brick and steel, 140 x 250 ft., one story.

The Wallace Machine & Foundry Company, Lafayette, Ind., has increased its capital stock from \$20,000 to \$40,000. R. B. Wallace is president of the company.

The Ripley Foundry & Machine Company has been incorporated at Ripley, Ohio, by R. L. Russell, Walter L. Russell, H. L. Russell, Frank M. Russell and Penn Flaucher. The capital stock is \$30,000.

The Champion Safety Lock Company, Geneva, Ohio, has increased its capital stock from \$75,000 to \$100,000.

The Davis-Price Foundry Company's plant at New Cumberland, W. Va., which was recently destroyed by a fire that entailed a loss of about \$40,000, will probably be rebuilt.

It is rumored that a large shoe manufacturing company of Lynn, Mass., is considering moving its plant from that point to a location near Cincinnati.

Work on the new plant of the American Rolling Mill Company at Hamilton, Ohio, is being pushed rapidly, and part of the steel framework is already erected.

The Newport Rolling Mill Company, Newport, Ky., is in the market for a 300-kw., 200-volt direct current generator, direct connected to an automatic noncondensing engine, all complete with switchboard and instruments.

The business of the Browning Mfg. Company, Mansfield, Ohio, has been incorporated with \$20,000 capital stock. The company advises that it is not making any alterations or improvements.

C. A. Halse, manager of the Felber Biscuit Company, Columbus, Ohio, is having plans drawn for a new three-story factory building equipped with the most modern machinery, sprinkler system, electric power, &c.

THE MACHINERY MARKETS

Cleveland

CLEVELAND, OHIO, October 11, 1910.

While the local machinery market shows practically no change, the outlook is regarded as somewhat better. One of the most encouraging signs is the increased activity in the automobile trade. Some of the local plants that engage largely in the manufacture of automobile parts have within the past few days received instructions for deliveries on orders that were held up several weeks ago, so that they now have considerable work on hand. Orders for machine tools are largely scattered, coming mostly from smaller machine shops. The demand is largely for small and medium sized milling machines, drill presses, lathes and planers. The most of the larger manufacturing plants are only fairly busy and can get along with their present equipment until orders are more numerous. This condition is delaying purchases by some manufacturers who have been considering the installation of additional machinery. Railroads continue to hold off, about the only business from that source being single tools. The demand for second-hand tools is fair. The number being offered to dealers is not large.

Manufacturers of heavy handling machinery report an improvement in the amount of work in prospect and their estimating departments are busier than they have been for some time.

In the foundry trade the demand is fair, but there is no complaint of a scarcity of molders, which is quite common when the foundries have all the work they can do.

The G. H. Williams Company, Cleveland, maker of clam shell buckets and hoists, has purchased the plant of the Mayo Life Boat Company, Erie, Pa., and within the next few months expects to enlarge it and fit it up for manufacturing its products. At present the Williams Company has its products made by another concern. The Mayo plant is a one-story structure, 65 x 155 ft., recently built and equipped with modern machinery. The company expects to build a 100-ft. extension to this building, to provide room for a structural shop, and will also build a forge shop. The Williams Company reports a good demand for buckets, its orders for the past month having averaged about one bucket a day.

The Dick Mfg. Company, Canton, Ohio, maker of agricultural implements, is preparing plans for erecting an addition to its plant that will double its present capacity. New machinery will be installed.

Bids for coke oven machinery and coal and coke handling machinery for the new ovens of the Bethlehem Steel Company at South Bethlehem, Pa., have been asked for by the Didier March Company of New York, which was awarded the general contract a few months ago.

At the monthly meeting of the Metal Trades Superintendents' and Foremen's Club of Cleveland, October 15, an address on apprentices will be delivered by J. Howard Renshaw of the Cincinnati Continuation School.

Two new manufacturing plants in Sandusky, Ohio, will begin operations during the present month. One is the plant of the Farrell-Cheek Steel Foundry Company, which is near completion. The other is the plant of the Sandusky Auto Parts & Motor Truck Company, which will be ready to start up during the latter part of the month. Another metal working industry is assured for Sandusky in the closing of a deal by the Sandusky Business Men's Association with a new automobile concern to occupy the plant of the Warren Electric Mfg. Company. The name of the company is withheld until the contracts are signed.

The Fremont Stove & Range Company, Fremont, Ohio, recently incorporated with a capital stock of \$35,000, has purchased the June foundry plant in that city and will fit it up for the manufacture of its products. The company has elected the following officers: President, R. J. Christy; vice-president, Ed. H. Zurhorst; secretary and treasurer, N. C. Sherwood; general manager, T. H. Conway.

The Fremont Furnace Company is the name of a new concern in Fremont, Ohio, that will build a plant for the manufacture of heating furnaces. A two-story brick building 50 x 101 ft. will be erected. Theodore Harris and J. H. Combs, who are at the head of the enterprise, have a plant at Tecumseh, Mich., which they will remove to Fremont.

In addition to the machine shop equipment for its new plant at Corey, Ala., the list of which was published two weeks ago, the American Steel & Wire Company has issued a supplemental list of about 15 woodworking tools, including planer, band saw, wood trimmers, saw table, jointer, &c.

The Ohio Sash & Door Company, Cleveland, which recently purchased the old plant of the White Sewing Machine Company on Canal Road, will occupy it for manufacturing purposes, removing its manufacturing plant to Cleveland from Oskosh, Wis., as soon as necessary alterations are made.

The Davis-Price Foundry & Machine Company, New Cumberland, Ohio, will build a new plant in that place to replace the one that was recently burned. A one-story brick structure with up-to-date equipment is planned.

The Mining Safety Device Company, Bowerston, Ohio, is fitting up a plant for the manufacture of machinery for the safe loading and discharge of coal cars on shaft cages.

A new company, headed by John Vocke, will establish a plant in Napoleon, Ohio, for the manufacture of steel barrels.

It is announced from Akron, Ohio, that the American Tire & Rubber Company, recently formed in that city, has decided to build a plant in Kenmore, a short distance from Akron.

The Dusseau Fore & Rear Drive Auto Company, Toledo, Ohio, has been incorporated, with a capital stock of \$100,000, by S. V. Dusseau and others.

Pittsburgh

PITTSBURGH, PA., October 11, 1910.

While the market for machinery continues irregular, its condition is far from discouraging. During the past week no ground has been lost, and in some quarters further improvement is reported, with signs of increasing activity at the larger industrial plants.

Announcements of plans for work extensions or other betterments are also becoming more numerous, as partially indicated in the items printed below, and in the Western part of the district, especially, the preparations for such are well under way. At the industrial centers of West Virginia, particularly in the vicinity of Wheeling, and along the rivers of Western Pennsylvania, the activity is pronounced.

Sales of machine tools, as well as shop, foundry and mill equipment in general, are still made almost entirely in small lots or singly; but enough scattered orders have been coming in lately to keep dealers reasonably busy, and some of the leading machinery houses have a line on considerable prospective business, including a number of sizable contracts to be let between now and January 1, or at least shortly thereafter, at various mills.

More than a little quiet buying has recently developed on the part of the coal carrying roads, and this covers a wide range of material, including more electric and pneumatic apparatus than has ordinarily been purchased.

Automobile companies are also beginning to order rather freely from foundries and shops in the districts with which they have dealt largely in the past. Season contracts for castings, forging and manufactured parts will play quite a part in this business from now on, and new concerns coming into the field are looking for desirable connections.

A car house with tools for repair work will be built at North Vandergrift by the Pittsburgh & Allegheny Valley Railway, Leechburg, Pa. The arrangements for this, however, have not yet been fully determined upon.

Improvements in the mining equipment, handling plant, &c., of the McKean Coal Company, Tarentum, Pa., considerably increasing its output, will be made in the near future. Geo. H. Schickler, Pittsburgh, recently acquired an interest in the company and has been elected president.

The Vanadium Mines Company has had plans drawn by S. Diescher & Sons, Pittsburgh, for a reduction plant 75 x 100 ft., two stories, which will be of brick and steel construction.

Machinery houses here will figure on the pumping equipment of a system of modern water works to be installed at Romney, W. Va., the arrangements for which are still incomplete.

Julian Kennedy, Pittsburgh, recently finished plans for the new foundry, 180 x 380 ft., to be added to the plant of the Niles Tool Works, Hamilton, Ohio.

Plans for the large new generating plant to be erected by the Consumers Electrical Company at Wheeling, W. Va., have not yet been drawn, but will be completed and bids on the machinery taken late this fall or early in the coming winter.

Plans are being made for a new manufacturing plant to be built by the Tuna Valley Brick Company at Bradford, Pa.

A movement started some weeks ago to secure a greater number of local industries utilizing the products of the iron, steel and tin plate mills in this vicinity has already gathered head and promises to develop considerable volume. The principal hindrance to a successful issue is the lack of effective co-operation between the different business interests concerned and the failure to agree upon a definite line of campaign, but it is felt that each of these will be secured before a great while. At McKeesport a similar effort is being made.

The chief engineers of the various plants of the American Locomotive Company, accompanied by H. C. Hequembourg, head of the purchasing department, held their annual meet-

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ing in Pittsburgh last week, after which a visit was paid to the works of the Cambria Steel Company at Johnstown, Pa.

A letter from Scranton, Pa., states that the Rudesyle Company, of which N. J. Rudesyle is manager, has been organized there at 1537 Gardner avenue, to handle and install boilers, engines, pumps and other steam power plant equipment, also low pressure boilers and auxiliary appliances for heating purposes. Catalogues and prices of standard apparatus are desired. All members of the company are practical operating engineers.

A group of factory buildings, the principal structures in which will be 60 x 400, 60 x 300 and 60 x 100 ft., are to be erected at Coldwater, Ohio, by the New Idea Spreader Company, the headquarters of which are in Maria Stein, Ohio. It is expected that the bulk of the equipment will be supplied by manufacturers of this district.

The construction of water works is under consideration by the authorities at Hazeldell, Pa.

Besides the improvements recently noted, the Westinghouse Air Brake Company will add to the power equipment of its shops at Wilmerding, Pa. A new steam turbine unit is to be installed in the electric generating station, together with auxiliary apparatus.

A machine and forge shop, with tools for maintenance work and repairs to mining machinery, will be built by the Pittsburgh Coal Company at what is known as its Colonial No. 3 Mine.

Detroit

DETROIT, MICH., October 11, 1910.

So many plans for new factory buildings, shop extensions, power plants, waterworks systems, &c., are now coming to a head that representatives of machinery houses have recently been very busy making estimates or direct bids on specifications; and some concerns find that inquiries are arriving faster than they can be taken care of promptly. The better part of the demand is from small plants or those of medium size, and the lighter types of tools sell to the best advantage. Simplicity of parts and operation is also a feature that appeals more strongly to buyers this fall than ever before, automobile companies and gasoline motor manufacturers having taken the lead in this respect. A noteworthy example will be found in present tendencies at the Everett, Metzger, Flanders Company's plants. Equipment of all kinds for sheet metal work has been quite largely wanted of late; fabricators of iron and steel for various structural and ornamental purposes are buying to an increasing extent, and the foundry outfits supplies by local houses find a good market in many other parts of the country as well as here.

From a summary recently printed it appears that, if the next few weeks do not fall below the average, this year will establish a new high record for building operations in and about Detroit. The same may also be said of the State at large. It is felt by leading business men that, in spite of any setbacks which may temporarily retard it, the industrial growth of this section will proceed at a steady pace, with corresponding development along all lines of trade.

Construction contracts have been awarded Buck & Mullen, Muskegon, Mich., on a three-story factory building, 65 x 400 ft., for the Brunswick-Balke-Collender Company.

The Canadian General Electric Company is endeavoring to secure mechanics here, especially horizontal and vertical boring mill hands, for its shops at Peterboro, Ont.

Electric motors, with ratings which aggregate nearly 6000 hp., will be purchased some time this fall for the new shops of the Lake Shore & Michigan Southern Railway. Contracts for the main generating units to be installed in the power station have already been let.

The Detroit Steel Products Company, Detroit, has had a nice line of business lately in its structural department and has added to the force of men employed for that work.

A four-story factory building, 60 x 100 ft., will be remodeled and equipped for the use of Noack & Gorenflo, manufacturing jewelers of this city.

It is reported from Manistee, Mich., that, as the result of inducements offered by the city, two new factories will be built there by the Reid Mfg. Company and the Crown Chemical Company. The former's product will be baker's equipment, and the latter proposes to establish a plant for extracting turpentine from pine stumps.

The Franklin Iron & Metal Company, recently incor-

porated at Battle Creek, Mich., will handle scrap metal of various kinds on the usual basis.

Interests identified with the Hillman Electric Light & Water Company, Hillman, Mich., are planning the installation of another power plant at a point not far distant.

An additional three-story factory building is to be erected by the Hargreaves Mfg. Company, Detroit, with a bridge connecting it to the remainder of the plant.

Bids are about to be taken on the new boiler plant for the city of Detroit, reference to which has previously been made. F. E. Mistersky, 40 Atwater street, E., is in charge of the work.

Plans for a large expansion of its power system, involving heavy expenditures for new equipment, are being made by the Grand Rapids-Muskegon Power Company, Grand Rapids, Mich.

The Prescott Company, Menominee, Mich., has been given the contract for the machinery to be installed in a large timber cutting plant which will be erected there by the J. W. Wells Company, in connection with the flooring factory recently completed.

The Bay City Power Company, Bay City, Mich., has been granted authority by the state railroad commission to issue bonds for \$500,000 in order to proceed with a project which involves the ultimate purchase of considerable machinery.

An 8-ft. band resaw has been ordered by Mitchell Bros. for their plant at Cadillac, Mich., duplicating equipment already in operation.

In order to provide for the increase in its business, the Moore Plow Implement Company, Greenville, Mich., has added \$50,000 to its capital stock.

Wm. Horner, Reed City, Mich., is proceeding with plans for rebuilding, on a more extensive scale, the flooring factory which was recently destroyed by fire.

Mildner & Eisen, whose offices are in the Hammond Building, Detroit, recently completed plans for the new boiler plant to be built by the Tivoli Brewing Company. It will be a two-story structure 50 x 70 ft., of brick construction.

It is stated locally, but without direct authentication, that the Abbott Motor Company, Warren, Ohio, will build a large automobile plant in Detroit, plans to that end being now in course of preparation.

Geo. H. Hayes is reported to be arranging for the construction of a new factory building to be added to the plant of the Chicago Pneumatic Tool Company on Second avenue, cor. Amsterdam, Detroit.

Jas. H. Langley & Ray W. Long of Detroit, with others, have organized the Phoenix Engineering Company, capital stock \$10,000.

It is reported from Trenton, Mich., that the business interests there have persuaded the Ayres Gas Engine Company, Rochester, Mich., to remove to that place a share in the enterprise being taken by local capital. This will result in an enlargement of the company's manufacturing facilities.

The Rodgers Boiler & Burner Company, Muskegon, Mich., has met with much success this year in placing its water-jacketed type of refuse burner with large mills. Restrictions on the sale of such apparatus have been removed by recent decisions of the federal courts denying to any one manufacturer exclusive patent rights on the system, and a notable increase in business has been the result.

Figures are being taken on power plant equipment for the new tannery of the Edwin Armstrong Company, Detroit, Mich.

C. Hoertz & Sons, Grand Rapids, Mich., have been awarded the contract for a large new electric generating plant for the Kankakee Power Company, Kankakee, Ill. This does not include the equipment, including hydraulic turbines, which will be purchased as required.

The Houghton Copper Company, Houghton, Mich., has decided upon the use of electric power for driving the hoisting machinery and air compressors required in its operations, current to be obtained from the Houghton County Electric Company. It is expected that this will result in the enlargement of the latter's plant, which is managed by Stone & Webster Company, Boston, Mass. The equipment at present consists of Curtis steam turbine unit of 1500 kw. and General Electric generators of 3500 kw. driven from engines furnished by the Nordberg Mfg. Company, Milwaukee, Wis.

The Hale Motor & Machine Company, Detroit, Mich., advises that its new plant which is being erected on Franklin street is practically completed and will be ready for occupancy by November 1. The dimensions of the main building are 64 x 201 ft., one and two stories. Part of the machinery has been purchased and is now being installed.

Edmunds & Jones, 404 Moffat Building, Detroit, Mich., are having plans prepared for an addition to their automobile lamp factory, 67 x 200 ft., three stories, and a power plant.

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Milwaukee

MILWAUKEE, WIS., October 10, 1910.

Now that there has been an opportunity of reviewing trade conditions for the opening weeks of the fall season, it is found by leading manufacturers, both in and out of the metal working industries, that the aggregate of business is more satisfactory than was generally realized during the past month. While certain large contracts, upon which attention has been riveted with the expectation that they would be closed by this time, are still out of reach, there has been a reasonably steady influx of the ordinary orders, including repair work, spares, &c., upon which the greatest dependence is placed to keep the shops in operation. An evidence of this is the fact that machinery and parts manufactured for stock do not seem to accumulate very fast, owing to the fact that they are called for almost as soon as listed with district offices and agencies. Motor manufacturers, for example, have found it practically impossible to get far enough ahead with certain frame sizes to keep to the rule of prompt shipments which it was hoped to maintain during the autumn months.

The percentage of actual bookings to inquiries is, however, smaller than it has been for a long time past, and salesmen are working harder for what business they do get. Correspondence is heavy in all lines, and the distribution of advertising literature has assumed proportions never before known.

The Vilter Mfg. Company, Milwaukee, has recently increased the equipment of its machine shops, and other new tools are now on order which will be installed in the near future. For the power plant the company is building a large Corliss engine of its own design, which will embody the latest improvements, and the system of electrical operation in the works is being considerably extended. Business at the present time is reported good. The works are being run day and night, and prospects of securing orders for the remainder of the year are favorable both on Corliss engines and ice making and refrigerating machinery.

The Wisconsin Bridge & Iron Company, Milwaukee, has the contract for the structural work on a new plant 90 x 200 ft., for the J. W. Wells Company, Menominee, Mich.

The Nordberg Mfg. Company, Milwaukee, whose lines of production include both Corliss and poppet valve engines, air compressors, pumps, mine hoists and blowing engines, states that business is picking up slowly but steadily, with indications for a very successful new year.

Work has been started at Stoughton, Wis., on a new woodworking shop, three stories, 55 x 234 ft., to be added to the plant of the Mandt Wagon Company. The building is to be erected this fall for about half its length and extended in the spring.

The Mitchell-Lewis Motor Company, Racine, Wis., is planning its new factory facilities so as to provide for a season's output of 8000 machines. It is the expectation of the management that every one of these cars will be disposed of before it leaves the plant.

It is reported from Marinette, Wis., that the sawmill and planing mill of the Sagola Lumber Company, which recently burned, will probably be replaced by a modernly equipped plant, but no authoritative announcement has been made on the subject.

From the property of the Newport Mining Company of this city, at Ironwood, Mich., upwards of 1,000,000 tons of ore will have been shipped this year by the end of the season, this mine being the largest producer on the Gogebic range. Ben W. Vallat is now general superintendent of the company at Ironwood.

A machine shop for general construction and repair work is being added to the plant of the Rib Lake Lumber Company, Rib Lake, Wis.

A large gasoline engine for operating its hoist and pumps is being installed by the Minnie Mining Company, Benton, Wis. The remainder of the machinery will be driven by motors supplied with current from the plant of the Interstate Power Company, Galena, Ill.

The Benton Mining & Development Company, Benton, Wis., has taken over the property of the Pittsburgh-Benton mine, which was owned principally in Pittsburgh, Pa., and will operate it, necessitating the purchase, in due course, of some new equipment.

The 1500 vanners recently sold by the Galigher Machinery Company to the Ray Consolidated and Chino Copper companies, constituting the largest order of the kind ever entered, will be manufactured under contract in the shops of the Allis-Chalmers Company at Chicago, Ill.

A two-story addition will be made to the plant of the Sheboygan Gas Light Company, Sheboygan, Wis., and new equipment provided.

Arrangements are being made at Randolph, Wis., for a new factory building, 100 x 170 ft., to be erected by the Randolph Wagon Works.

It is reported from Chippewa Falls, Wis., that the plant of the Chippewa Falls Chair Company, which burned some time ago, will not be rebuilt there at present.

Bids are being taken by Vaughn & Meyer, Majestic Building, Milwaukee, on motors and other electrical equipment, exclusive of the generating units previously purchased, for the new plant of the Kemp Smith Mfg. Company at West Allis, upon the construction of which rapid progress has recently been made.

The Adams Patent Wheel Company, Cassville, Wis., has let contracts for the construction of a new manufacturing plant, with power house.

Among large orders recently taken by the McDonough Mfg. Company, Eau Claire, Wis., in Pacific Coast territory, is one for the complete equipment of a new sawmill to be erected by the Delkana Lumber Company, Delkana, Wash. This includes a 22 x 30 in. heavy duty engine, 8-ft. double cutting band mill, three-block steel carriage with steam set works, steam feed, edger, slasher, trimmer and other machinery.

A company organized by S. O. Bestul and others at Iola, Wis., will build a plant for the manufacture of clothes reels. The initial structure is to be two stories, 40 x 70 ft.

Among orders recently taken by the Milwaukee Locomotive Mfg. Company of this city is one for a 35 hp. machine to be used in the work of driving the great Snake Creek Tunnel near Park City, Utah, where the conditions are such as to render the selection of a locomotive of this type particularly desirable. The contract was placed through the F. C. Richmond Machinery Company, Salt Lake City, Utah, which is busy on numerous other inquiries for similar outfits.

Arrangements are now under way for the construction by the Wisconsin Power Company of a large hydroelectric plant at Prairie du Sac, Wis., on the Wisconsin River. Magnus Swenson, Madison, Wis., is president of the company and has been directing the initial arrangements.

The Racine Tool & Machinery Company, Racine, Wis., is letting contracts for work on its new factory building, 40 x 100 ft., two stories, which will be of brick construction.

It is reported from Delavan, Wis., that a factory is to be erected there by the Star Pointer Pump Works, whose present address is given as Chicago. The first building to be constructed will be a foundry 50 x 200 ft., followed by a machine shop, assembling shop and warehouse.

The project of building a municipal power and lighting plant at New Holstein, Wis., has been defeated, but the matter will be submitted to the electors again.

Contracts are being let on a machine shop, 100 x 200 ft., forge shop 100 x 200 ft., erecting shop, 300 x 300 ft., and general repair shop, 200 x 375 ft., for the new car building plant of the Milwaukee Electric Railway & Light Company, Milwaukee. Other buildings are to be taken up later, including a large power house.

The Kieckhefer Box Company, Milwaukee, is contemplating the erection of a paper mill for the manufacture of all kinds of containers and cartons from wood pulp and manila fiber. Although plans have not been definitely decided upon, it is understood that the building will be about 150 x 400 ft., four or five stories, with a capacity of about 90 tons a day.

The La Crosse Plow Company, La Crosse, Wis., has purchased ground near its present plant upon which it will erect a new foundry during the coming year. The company advises, however, that it will not purchase any new equipment, but will move that now used in its present plant to the new one when completed.

The Hummel & Downing Company, Milwaukee, Wis., is preparing plans for a new factory building 100 x 400 ft., four stories and basement. The first floor will be used as a combination board mill and will have a minimum capacity of 40 tons a day. The other floors will be used for the manufacture of fiber and folding boxes.

St. Louis

ST. LOUIS, MO., October 10, 1910.

Some buyers from Tennessee and Indiana, among others, have visited this city during the past week. One of the leading machinery houses mentions the receipt of some very fair business from old Mexico. Another merchant seller reports the sale of a pumping plant requiring two cars for shipping it, to be forwarded to Kansas City, and is filling an order for a lathe for Texas. An increase in the number of inquiries is mentioned, though there is difficulty experienced in bringing about sales.

As an instance of the notable rearranging of manufacturing districts and progress in St. Louis now, the growth in

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importance in this line of the section adjacent to Cass avenue is worth mentioning. The Regal Buggy Company is preparing to move into its new plant near Eleventh and Mullamphy streets, after vacating its old quarters near what will be a terminus of one approach of the municipal free bridge now under construction across the Mississippi. The Turley Machine & Tool Company has under construction a fine new plant in the same neighborhood, which will be equipped with modern machinery for the manufacture of all kinds of cut gears, which is the exclusive specialty of this concern. The Crucible Steel Company of America has also moved into new and more commodious quarters in the same section.

The Brecht Company during the past year has made important improvements in its facilities, having wrecked a number of its old buildings and replaced with modern heavy building construction, which now occupies a good part of the city block.

The large plant of the Mississippi Glass Company in North St. Louis is fairly well occupied and some important improvements in equipment have been recently carried out.

The St. Louis district is becoming quite important in the manufacture of cartridges for rifles, revolvers, &c., and powder. Several good-sized factories are now engaged in this line.

Another industry that is gradually assuming large proportions is the making of coal mining and railroad track tools, &c. These plants are located in suburbs of St. Louis.

The two factories working on shovels find business very good for this season.

The St. Louis Machine Tool Company, manufacturer of tapping machines, drill presses, &c., is getting its line in good shape and promises to contribute to the growth of St. Louis as a machine tool center.

The Smith-Matteson Aeroplane & Engine Mfg. Company, New York, has leased a building at 6628 Delmar avenue, St. Louis, and will engage in the manufacture of aeroplanes. The equipment of the factory will be begun at once. This makes the second factory in this line established at St. Louis.

Another large concentrating plant will be added to those operating at West Joplin, Mo., through the determination of the Empire Zinc Company to try out the deposits of disseminated zinc and lead ores found there. The milling plant to be erected will handle from 300 to 350 tons per day.

The Luck Cement Post Mold Company, Aurora, Ill., has been incorporated, with a capital stock of \$40,000. The incorporators are John G. Birtness, G. H. Klenze and E. W. Schoede.

The National Lock Company, Rockford, Ill., certifies to an increase in capital stock from \$150,000 to \$250,000.

Noah Twist's elevator at New Berlin, Ill., was destroyed by fire October 3. The elevator was valued at \$30,000.

The Rocky Ford Milling & Power Company, Manhattan, Kan., has been reorganized under the name of the Blue River Power Company, and has purchased machinery to duplicate the power plant located 4 miles north of Manhattan, on the Blue River. The new plant will have a capacity of 1000 hp.

A. N. Merrill, Hutchinson, Kan., has started the construction of a factory building at Thirteenth and Monroe streets, in which he will engage in the manufacture of gloves.

Arrangements are being made by Axel O. Ihlseng, Galena, Kan., to build a 600-ton mill on the old Murphy and Empire tracts at North Empire. Previous to the installation of this new mill the Empire Zinc Mines Company will put in a centrifugal pumping plant which will effectually drain the whole tract of 100 acres under lease.

The Rock Grain Company, Hutchinson, Kan., will soon rebuild its elevator at Albert, Barton County, recently destroyed by fire.

An order requiring the Consumers' Gas Company, a Missouri corporation piping gas to St. Louis and other Middle West cities, to pipe Miami, Okla., was issued September 29.

The gas smelter owned by the Lanyon Starr Smelting Company and located at Batesville, Okla., was sold September 29 to the American Metal Company, which took possession October 1. The plant will be enlarged by the expenditure of about \$200,000. The Lanyon Starr Smelting Company owns a smelter at Pittsburg, Kan., and will continue in business by starting up its works there. Extensive improvements will, however, be made at their plant before resuming.

The city of Mannsville, Okla., has voted to sell \$20,000 in bonds with which to construct a water system. The plant will consist of two steam pumps and a pumphouse, boilers and engines, a water tower, tank and about four miles of water mains. The contract will also call for an equipment for a fire department.

The Santa Fé Railroad has surveyed a site on its tracks at Sulphur, Okla., for a large elevator, which will be rushed to completion.

The R. L. Cole's sawmill, four miles north of Jonesboro, Ark., was destroyed by fire September 24.

The Legislature of Arkansas is about to pass an ap-

propriation for the heating plant for the new capital at Little Rock. The building will be made ready for occupancy prior to January 1.

The Cotton Belt Railroad will build a large viaduct to connect Texarkana proper with Carmichael Hill, spanning the railroad yards and tracks at the Oak street crossing. The viaduct will be 1500 ft. in length and will cost about \$200,000.

The Higden Milling Company, Higden, Ark., was organized September 24, with a capital stock of \$40,000. The following officers were elected: president, Dr. H. J. Hall; secretary, J. W. Hardy; treasurer, Dr. C. D. Lester; manager, G. W. Davis.

The Reynold Bros. planing mill, Pittsburg, Texas, was destroyed by fire September 22. The loss, including a large quantity of lumber, is estimated at \$20,000.

H. T. Weathers, Greenville, Texas, has sold his power plant to the city of Greenville. The consideration is understood to be \$4000, and the city will take charge December 1. The city operates with an alternating current and the Weathers' plant with a direct current which will necessitate the proper changes to be made.

The city of Brady, Texas, will build two bridges across the Colorado River, one at Walrip, and the other at Stacy; also a bridge across the San Saba at Voca, and one across Brady Creek. The four bridges call for an expenditure of \$42,000.

A location has been secured for the wire goods and reinforcing material factory projected by Charles H. Holt at San Antonio, Texas. A charter for the organization of the company with a capital stock of \$500,000 will be applied for.

The acid plant of the Gulf Refining Company at Port Arthur, Texas, was destroyed by fire September 27. The loss of the building and contents is estimated at \$20,000.

The plant of the New Orleans Cotton Oil Mill Company at Hagan and Washington avenues, New Orleans, La., was destroyed by fire October 3. The loss is estimated at \$42,000, a large part of which is covered by insurance.

The grain elevator of E. C. Buchanan & Co. on Clinton street, Memphis, Tenn., was destroyed by fire October 5, causing a loss on the building and contents of about \$60,000, which is partially covered by insurance.

The Moore Mfg. Company, Springfield, Mo., expects to move its plant to some point where power costs and shipping facilities will be more favorable than its present location. The company has not decided as yet where it will go.

Dayton

DAYTON, OHIO, October 10, 1910.

Nearly all manufacturing plants in Dayton are working a full force and some of them have on night shifts. Practically everything made here has a market in all parts of the world, and when orders from one territory are slow in coming in, those from another field help to keep the factories busy, hence, local manufacturers have not noticed any appreciable let-up in business such as reported from other cities whose manufactured lines are not so varied and whose products have a more limited market. Dayton has the largest cash register factory in the world, and its clay-working machinery, large pumping outfits, sewing machines, bicycles, &c., are well known in every country on the globe. It is the home of the first and now the largest aeroplane factory in existence and the diversified manufactured products tend to keep local business on an even basis.

Plans for new factories, as well as additions to existing ones, are being carried out. Local bankers report money in better demand, and taking everything into consideration the situation with manufacturers here is generally satisfactory, especially when compared with other parts of the country.

The C. W. Raymond Company, one of the world's largest manufacturers of clay working machinery, is finishing up a large plant at Bolander street and Broadway. The main building is 100 x 325 ft., two stories, of brick and steel construction, and is equipped with a 40-ft. 10-ton traveling crane. The foundry is of the same construction and measures 105 x 120 ft., one and one-half stories high, and is also equipped with a 10-ton crane and a Sturtevant blower. Most of the foundry equipment, including the cranes, is to be furnished by the Whiting Foundry Equipment Company of Chicago. The car shop, which is now in operation, is 25 x 100 ft., one story, and 30 to 40 cars are now being turned out by the company, using electric drive for the machinery. Other buildings to be erected include a pattern house 30 x 160 ft., a boiler shop 40 x 160 ft., both one story, and an office building 36 x 76 ft., two stories. All buildings are of brick construction with tile roofs, and both the brick and tile used were made on machines of the company's own manufacture. The equipment yet to be provided for includes

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that for the power plant and some special machinery for the main shop. All machinery will have electric drive. The heating contract is also yet to be let. The Raymond Company builds brick machines up to 200,000 daily capacity. It also controls the Youngren patents on producer gas fired kilns, which are claimed to save nearly 60 per cent. in fuel over the ordinary beehive type of kiln.

The Platt Iron Works Company, Dayton, is operating its plant almost up to capacity. It has lately received several orders for large municipal pumping outfits, and among recent shipments was an unusually large sized water wheel for a Pacific Coast customer.

The Davis Sewing Machine Company, Dayton, which has a daily capacity of 750 sewing machines and 500 bicycles, is one of the busiest plants in this section of the country. Orders for bicycles alone for next season already foot up over 125,000. The company also manufactures the Lester automatic screw machine and reports many orders for it from different sections of the country.

It is stated that the National Cash Register Company has plans under way for some extensive additions to its Dayton plant, but building details are not yet available.

The Dayton Lighting Company is installing additional boilers which will double the capacity of its plant.

A one-story brick addition, 46 x 56 ft., to the Dayton Motor Car Company's power house of plant No. 3 is now under construction. Plans were drawn by Architect Wm. E. Russ and the erecting contractors are Engle & Gohn, all of Dayton.

The one-story brick aeroplane factory, now being constructed for the Wright Company, Dayton, is nearly completed, and it will be occupied before December 1. Wm. E. Russ was the architect who drew up the plans for the structure.

The Thomas Mfg. Company, Dayton, manufacturer of cutlery and hardware specialties, is contemplating the erection of a factory building 175 x 250 ft., three stories, during the spring of 1911.

The Dayton Bronze Bearing Company, Dayton, Ohio, has been incorporated with a capital stock of \$20,000 by William B. Israel and others. The new company will carry on the business formerly conducted by Israel Brothers, iron and brass founders. The new company will make a specialty of street car and railroad bearings.

San Francisco

SAN FRANCISCO, CAL., October 5, 1910.

The local labor situation remains in about the same condition as before, and its adverse effect on the operation of foundry and machine shops is increasing. An indication of this effect is shown by the fact that large castings have been sent to Los Angeles for machine work, and returned here, at less than the work would have cost in the local market. The local market for metal working tools is accordingly very slow, though some business of an unimportant nature is going on all the time. A few local shops are busy, but none are making any extensive additions to their equipment. Activity is rapidly increasing, however, in other parts of the State, as there is a large volume of general work on hand, and a number of shops are increasing their capacity and replacing old machines. Few tools of the larger types have been sold, but several substantial orders have been booked.

One of the most encouraging features of the market is the increasing demand for woodworking machinery. Recent orders include little in the line of logging or sawmill equipment, as some of the mills are already closing down for the winter, but a general buying movement has commenced among the planing mills all over the State. In this line September was the best month in a year and a half. The demand is especially strong for modern types of heavy high feed machinery, which is rapidly supplanting the older types in wood finishing mills all over the coast. It has been demonstrated that these mills can make money by installing new equipment, and plants which still use older types are unable to compete.

While there are still a few inquiries for road machinery, the rainy season will soon put a stop to improvement work, and the movement is by no means as active as last month. Large rock crushing equipment is also expected to be quiet for the next few months, though deliveries of such machinery on old contracts are still coming forward. The movement of mining machinery is limited almost entirely to small orders. Small railroads in California are still in the market for small lots of rolling stock and general equipment.

There is comparatively little new business in large electrical equipment, though small to medium sized motors, generators, &c., continue in good demand. Inquiries for boilers and small steam power plants are fairly numerous. A few large pumping engines are being installed for water works, but the principal demand in this line is for small units, prin-

cipally for irrigation. This is about the only department in which the local manufacturers are keeping busy. Machinery of a general nature, however, is in steady demand, with several inquiries for creamery and refrigerating equipment, and the local branches of the two leading laundry machinery houses have booked a large volume of business in the last two months.

A project is under way at San Bernardino, Cal., to install a municipal electric light plant.

The Union Oil Company is preparing to install a water system through its properties in the vicinity of Bakersfield, Cal. Two new boilers are being installed at the main water station and three at another location.

The American Machine & Tool Company has been incorporated at Los Angeles by J. G. McCoy, W. M. McCoy and H. J. Leland.

The Stockton Iron Works, Stockton, Cal., is working on a \$75,000 clam shell dredger for the West Rivers Company of San Francisco. It is to be completed within 60 days.

A number of rumors have been circulated of late regarding a large steel manufacturing plant to be erected in the vicinity of Los Angeles and which is said to be backed by foreign capital, but so far no information which can be considered reliable has been given out.

Work will be started shortly on a new iron and steel foundry, to be erected for the Southern Pacific Railroad in connection with its large car repair shops at Sacramento, Cal. It will be one of the largest foundries operated by a railroad on the coast.

The Mery Iron Works, Chico, Cal., which recently announced its intention of moving to Oroville, has purchased a site at Thermalito, Cal. The plant will be entirely rebuilt and new machinery installed.

A new ore mill and electric generating plant will be installed next spring at the Black Bear mine in Siskiyou County, Cal.

The California Mining & Dredging Company, Eureka, Cal., is planning to install a new dredge next year.

John Carter is preparing to erect a machine shop at Lancaster, Cal.

A new boiler house is being erected for the Edison Electric Company at Ocean Park, Cal.

Contracts have been let for extensive improvements to the Union Ice Company's plant at Bakersfield, Cal.

The Keller-Thomason Mfg. Company, Covina, Cal., is putting in a shop for the manufacture of irrigating appliances, cement pipe molds, &c., at Los Angeles.

The Parker Iron Works has been incorporated at San Bernardino, Cal., with a capital stock of \$100,000, by W. M. Parker, W. W. Brison, F. A. Maginnis and C. M. Crow. The company has taken over the old machine shop operated by W. M. Parker, which will be remodeled and enlarged for specialized work in the line of refrigerating machinery.

Baker & Hamilton and the Cyclops Iron Works, San Francisco, are furnishing creamery and refrigerating machinery for the Riverdale Creamery, Hanford, Cal.

The California Transportation Company will soon place orders for a large river steamer.

The Sacramento Pipe Works, Sacramento, Cal., has been sold by W. W. Chapin to E. T. Schaw. The plant will be operated independently, having no connection with the Schaw-Batcher Company.

The machine shops of the Southern Pacific Railroad at Tucson, Ariz., were totally destroyed by fire September 29, at an estimated loss of \$350,000. The loss included, in addition to machinery, 10 locomotives, 18 oil tenders and four ballast cars. It is announced that the shops will be rebuilt at once.

The Acme Foundry Company, Wm. Victor, manager, Eureka, Cal., will shortly be incorporated, and the plant will be increased by the addition of a number of machine tools.

The town of Modesto, Cal., will soon be in the market for a lot of water works machinery.

Indianapolis

INDIANAPOLIS, IND., October 11, 1910.

The Elkhart Mfg. Company has been incorporated at Elkhart, Ind., with \$25,000 capital stock to manufacture electrical machinery. The directors are Walter Brown, H. A. Albert and H. S. Hubbard.

The Heimberger & Drinkard Veneer Mills, New Albany, Ind., maker of sawed veneers, will install additional machinery to materially increase the capacity of the plant. The company recently increased its capital stock \$25,000. Adam Heimberger is president of the company.

The Maxwell-Briscoe-Newby Company, Newcastle, Ind., manufacturer of automobiles, has changed its name to the United Motor Newcastle Company.

The National Time Switch Company, South Bend, Ind.,

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has been incorporated, with \$25,000 capital stock, to manufacture electric time switches. The directors are N. C. Morrison, E. L. Betts and Carl Lindewald.

The City Council of Marion, Ind., has issued \$75,000 in bonds to raise money with which to build a municipal electric light plant.

The American Gas & Electric Company, with its main plant in Muncie, Ind., has obtained a franchise to supply Eaton, Ind., with electric light and power, the service to be installed within 18 months.

The machine shop, engine and boiler rooms of the Southern Railway at Princeton, Ind., were destroyed by fire October 8, other departments being crippled by the destruction of the electric dynamos and air compressors. A steel crane costing \$50,000 was badly damaged. The loss was \$200,000. The plant will be rebuilt at once.

Beyer Brothers, Fort Wayne, Ind., are preparing plans for the construction of a large cold storage plant.

The Great American Automobile Company, Indianapolis, Ind., has plans prepared and is receiving bids through H. L. Bass & Co., architects, Indianapolis, for the construction of an automobile factory, 300 x 500 ft., two stories.

Toronto

TORONTO, October 8, 1910.

The enterprise of the country goes ahead and keeps the machinery market in good appetite. The demand for equipment seems almost unaccountably good. So sustained a call for new plants have not been looked forward to from the time it became clear the Western crop would be relatively short. But on the whole the present year's yield will not fall far below that of last year either in tonnage or money value. Agriculture in the East has all but made up for the partial crop failure in the West. Mining activity continues to do its part in the production of wealth. The immigrants, who keep on pouring into the country, are for the most part fore-handed people, and their money tells appreciably in the total buying power that is being exerted. Further, it cannot be too often repeated, Canada's public credit—federal, provincial, municipal—has high rating in the British money market, and the two or three hundred million dollars brought annually into the country makes work for new machinery. At present Canadian machine shops are very busy and there are no desirable machinists in the meager ranks of the unemployed.

Several of the manufacturing towns and cities of Ontario have just published figures showing material gains in assessment and population within the last twelvemonth. Toronto, Hamilton, Brantford, Berlin, Peterborough, Kingston and other places show progress that is largely to be credited to the growth of manufacturing industry.

Giving evidence before the Commission on Industrial and Technical Education at its session in Toronto, G. A. Watts, of the Toronto Foundry Company, said that the development of the foundry industry has been greatly hampered by lack of skilled workers. His company is trying to train men. It rewards men for efficiency by paying them premiums over and above their regular wages.

Robert H. Verity, general superintendent of the Massey-Harris factories, stated before the Commission on Industrial and Technical Education that the growth of the automobile business has made it difficult of late for his company to secure men. He added that his company is preparing plans for a building in which its employees can obtain luncheon and some amusements, in which also some form of technical education will be carried on.

The Steel & Radiation Company of Canada, with a capital stock of \$5,000,000, is announced as the latest Canadian merger in the steel and iron group. Two Toronto companies are named—the King Radiator Company and the Expanded Metal & Fireproofing Company—among those to be embraced. The works of these two concerns, in which nearly 300 men are employed, will, it is said, be enlarged. Three other existing companies are to be included, if rumors of the new company's plans are confirmed by events. It is stated that there are to be factories at a number of Canadian points and that steel products—such as structural forms, expanded metal, &c.—used in the building trade and in builders' plants will be made in the company's factories. A blast furnace may be added as part of the new company's operating system.

Half the capital for the Crown Electrical Mfg. Company, which is putting up a factory at Brantford, Ont., has been subscribed locally. The stock thus taken by Brantford parties in this Canadian offshoot of a St. Charles, Ill., business, is \$100,000.

The Shawinigan Water & Power Company at Shawini-

gan Falls, on the St. Maurice River, Quebec, is about to increase its power producing capacity by 75,000 hp. This involves the cutting of a section out of the side of the intake canal 1000 ft. long, and the erecting of a concrete and steel bulkhead at an angle of 60 degrees to the existing bulkhead. From this extension five steel penstocks, each having a capacity of 15,000 hp., will be carried to the power house to be erected on the lower level, to which there will be a head of 150 ft. The power house is to contain five units, consisting of turbine water wheels directly connected to an electrical generator.

The Chapman Engine & Mfg. Company has received incorporation under Ontario laws, the capital stock being \$200,000, and the head office being at Dundas, Ont. It will manufacture engines and machinery.

The Verity Plow Company, Brantford, Ont., has let contracts for additions to its works costing \$60,000. The Penman Mfg. Company of the same city, will commence shortly upon additions to its works to cost \$80,000. It will employ 400 additional hands.

At Guelph, Ont., the Gilson Mfg. Company is building an addition to its factory that will double its capacity. Also the Page Hersey Tube Mill Company there is extending its plant to meet the needs of increasing trade.

At Thorold, Ont., the Colonial Wood Produce Company is building an extension to its plant that will enable its output to be increased by 25 per cent.

At Hamilton, Ont., the following companies are making additions to their factories and works: Canada Shovel & Tool Company, International Harvester Company, F. W. Bird & Son, Canadian Westinghouse Company, Hamilton Bridge Works Company. The last named company, in addition to the making of considerable extensions to its present works, will put up in the East End—where it has purchased a large tract—buildings for the storing of stock and for the manufacture of light structural steel.

The Dowsell Company, Hamilton, which manufactures wringers, washing machines and kindred articles, has changed its name to the Cummer-Dowsell Company and increased its capital stock from \$75,000 to \$250,000. Extensions of its plant are projected.

William Mackenzie, president of the Canadian Northern Railway Company, stated in a Toronto newspaper interview that a giant plant for the manufacture of paper, pulp and carbide will be established on the Saguenay River, near the Lake St. John Railway in Quebec, a line belonging to the Canadian Northern system. The company which has this undertaking in hand is capitalized, says Mr. Mackenzie, at \$10,000,000, but he declines at present to say who the principals are.

The Canada Sugar Refinery Company, Point St. Charles, Montreal, is building a large brick and iron warehouse for receiving raw material and a large structure to be used for melting purposes.

The Appelford Counter Check Book Company has taken out a permit to build a factory in Hamilton, Ont.

Conditional upon the granting of a fixed assessment and other special privileges, the branch of the Penberthy Injector Company's works at Windsor, Ont., will be extended so as to provide for the doubling of the capacity there. Property adjoining the company's present plant has been obtained, and a \$20,000 building is to be erected.

Among the companies that have just received charters of incorporation from the Ontario Government are the following: Foley-Rieger Pulp & Paper Company, Thorold, Ont., capital, \$50,000; Imperial Electric Company, Windsor, \$50,000.

The Newfoundland Government is advertising the fact that for the encouragement of copper smelting in the colony the Customs Act provides for the free importation of smelters, allied machinery and coke, also that a Government bounty will be paid on all copper ore mined and smelted in Newfoundland at the following rates: \$1 per ton up to 100 tons; 50 cents per ton for lots of 100 tons up to 500 tons. The shipments of copper ore from the Tilt Cove mine, on the northeast coast, average 50,000 tons per annum, part going to Swansea, Wales, and part to the United States. At Goose Cove, also on the northeast coast, and at York Harbor, on the west coast, active mining for copper is being carried on.

The Joliette Steel & Iron Foundry Company, with a capital stock of \$250,000, has been incorporated to carry on business as a Dominion concern, its head office to be at the town of Joliette, Que. Among the powers conferred are those to manufacture steel and iron, to make and deal in motors, generators, electric plants, and to establish blast furnaces, open hearth furnaces, Bessemer converters, &c.

At Mine Centre and Fort Frances, in the Rainy River district of Ontario, manufacturing industries are wanted. Fort Frances will have 30,000 hp. of electrical energy to apply to plants when the hydroelectrical development there is complete. At Mine Centre the people are agitating for an electric smelter. The town is favored by great natural power

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resource and abundance of iron ore that might be economically reducible by electrical processes.

The Penman Mfg. Company, whose product is knitted goods, proposes to add to its existing Canadian factories one in Simcoe, Ont. The intention is, if a suitable building can be obtained, to put in new machinery.

Plans have been filed with the Public Works Department of the Dominion Government for the \$4,000,000 dry dock and ship repairing plant at Levis, Que.

The town of Renfrew, Ont., is offering debentures for sale to the amount of \$117,000, the proceeds to be applied to the construction of municipal works for the distribution of hydroelectrical energy to manufacturers and other consumers.

The stamps for the mill of the Temiskaming & Hudson Bay Mining Company, Cobalt, Ont., are being made by Fraser & Chalmers, Erith, England, the material being chrome steel, and the crushers, trammels, elevators, &c., are being made by the Allis-Chalmers-Bullock Company. A small transformer house is being built at the mine for the purpose of reducing the high voltage in order to operate the motors running the concentrators.

The Toronto yards of the Canadian Shipbuilding Company have been taken over by the John Inglis Company, which will make use of them in connection with its machine and engine works in their vicinity.

The reduction and smelting works at Trout Mills, Ont., which have been closed down of late, are shortly to become active under new auspices.

In Peterborough, Ont., the William Hamilton Company has secured two large contracts for hydroelectric plants, the Peterborough Canoe Company is extending its factory, and the Collier Electric Company is receiving some large Western orders for electric irons.

A large brick and steel building is being erected for the Central Foundry Company in Port Hope.

At Niagara Falls, Ont., the Canadian Ramapo Company, which manufactures railroad track equipment, is building a large addition to its plant. In that town a branch factory of a company that makes electric lighting equipment is to be established. A furnace company, made up of parties from the United States, has acquired an unused foundry building in the town in which it is to put 25 men to work.

In Toronto, the Canada Foundry Company has recently closed contracts for bridges aggregating \$600,000. The Canada Cycle & Motor Company is building a four-story, 90 x 120 ft. addition to its factory, to cost, with equipment, \$100,000. The Canada Linseed Oil Company is putting up a three-story brick and concrete mill in Toronto to cost \$35,000.

The double tracking of the Canadian Pacific Railway bridge crossing the St. Lawrence at Lachine, a suburb of Montreal, is expected to cost \$2,500,000. Existing piers have to be widened and new ones constructed to obtain the necessary additional support. When the work, which has been some months in progress, is completed—in the spring of 1912—it will be one of the finest in the railroad systems of the continent.

Fire damaged the premises of the Percival Plow & Stove Company at Merrickville, Ont., to the amount of \$10,000 October 2. The loss is fully covered by insurance.

The Goderich Organ Company's factory at Goderich, Ont., with the plant and stock in the building, was practically destroyed by fire. Loss \$100,000, covered by insurance.

The town of Galt, Ont., is offering an issue of \$66,000 debentures, the proceeds to be applied to the installation of a plant for distributing hydroelectric energy within the municipality.

The Canada Foundry Company, Toronto, has secured the contract for the iron work in the electric light poles the city is setting up on the principal streets, and on which handsome lamps are to be set. The price is \$4.85 per 100 lb.

The Deere Plow Company, whose Canadian works are to be established at Welland, Ont., has already purchased the land specified in the by-laws approved by the rate payers of the contiguous rural municipalities of Humberstone and Crowland last week.

The United Motors Company, having obtained a charter of incorporation, it is expected to go on with its plant at Welland.

The Universal Chimney Cleaner Company is the name of a concern for which incorporation is applied from the Government of New Brunswick. Its headquarters are to be in St. John, its capital stock \$499,000. The men identified with the company are well-known residents of the province.

Last spring the city of Windsor, Ont., bought a tract of land to be used for factory sites and began a policy to build up a manufacturing quarter. Another step towards the carrying out of the policy is the approval, given this week, of the Canadian Board of Railroad Commissioners to plans for switching the Essex Terminal Railway line from

that factory district to the terminals of the five trunk railroads entering the city.

W. J. Press, mechanical engineer for the National Transcontinental Railway, was in Toronto on Thursday inspecting some machinery purchased here for the railroad. Interviewed on the subject of Canadian machinery, he said: "Two-thirds of the machinery and equipment in the railroad shops at Winnipeg was purchased from Canadian firms. There has been a wonderful improvement in Canadian machinery during the last five or six years, and the time is not far distant when all railroad equipment will be made here. The structural work in the Winnipeg shops is almost completed, but it will be at least nine months before they will be operated. The shops are very modern, and they will be when completed, among the finest, if they are not the finest, in Canada. The equipment alone will cost about \$2,000,000."

The Burlington Gasoline Engine Company is building a factory in Burlington, Ont.

A committee of the Town Council of Dundas, Ont., has been appointed to confer with the Hydroelectric Power Commission and the Chapman Engine & Mfg. Company to bring about an arrangement for the supplying of power to the latter through the medium of a municipal distribution plant.

The Town Council of Chatham, Ont., has granted a franchise to the Peninsula Oil & Gas Company to furnish natural gas from the Vienna field at 12 cents per 1000 ft. to manufacturers, which rate at the end of five years may be raised to 14 cents. Rates are also specified for domestic consumers, and the gas used in the public offices of the municipality is to be free.

Sealed proposals for machinery, pumps and motors will be received at the office of the Commissioners of the Transcontinental Railway, Ottawa, Ont., October 18, for the machinery required for the equipment of a roundhouse at Lake Superior Junction, Ont., and for the centrifugal pumps and motors required for the sewage pumphouse at the Winnipeg shops.

The South

NASHVILLE, TENN., October 10, 1910.

Among Southern industries as a whole, inclusive of public service companies, one of the most notable tendencies this season is the consolidation of plants and the establishing of communities of interest along many different lines. The effect of this upon the machinery trade is felt not only in more centralized buying but also in a growing demand for heavier or more efficient machinery. To some extent it would seem to militate against small local shops or machinery building plants having a restricted sales territory that remain independent of any alliances; but, as a matter of fact, practically all such are finding enough to do, and where their trade has been curtailed in one direction an outlet has developed for it in some other way. The growth of manufacturing cities like Birmingham, Nashville, Chattanooga, Charlotte and Atlanta is also exerting a very beneficial influence upon the market, by steadying it and giving it a wider range throughout the year than was possible under the older conditions. Recently this has been especially apparent, and the fall of 1910 can hardly fail to show up very well in respect to the total volume of business transacted, as compared with previous years. For the past week the average has been good and continued improvement may reasonably be anticipated.

Turbines, governors, alternating current generators, exciter units, transformers, switches, oil pumps, &c., will be required this winter by the Ogeechee River Electric Power Company, Rocky Ford, Ga., for a chain of hydroelectric power developments. Tenders of machinery will not be invited, however, until after construction contracts have been let.

If the recommendations of the local board are ratified at the coming election, machinery for a city pumping plant will be purchased some time during the winter at Kirkwood, Ga.

The project for a municipal pumping plant, water and sewage system at College Park, Ga., will be carried to completion in the near future, as the result of a bond issue recently voted for the purpose.

A new woodworking plant is to be built at Ocala, Fla., by the Ocala Lumber & Supply Company.

The Great Falls Power Company has been formed at Nashville, Tenn., by Fielding H. Yost, Dan E. McGugin and others to build a large hydroelectric plant on the Caney Fork River and transmit power to Nashville for use in the factories. Work on the development will begin some time this winter.

A Babcock & Wilcox boiler of 500 hp. is being added to

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the power house equipment of the Meridian Light & Railway Company, Meridian, Miss.

It is reported from Charlotte, N. C., although without official confirmation, that the Southern Railway Company will start work on repair shops there by or before the beginning of the year.

W. H. Patterson, Candler Building, Atlanta, Ga., is preparing plans for a public service system at Greenville, S. C., which comprises water works, electric lighting station and sewage plant.

It is reported from Atlanta, Ga., that extensive improvements are to be undertaken at one of the county buildings, including a pumping plant and the installation of an electric generating set.

Plans for a new viaduct on First avenue, in the vicinity of the Sloss-Sheffield Steel & Iron Company's works have been approved by the authorities at Birmingham, Ala.

High pressure pumping machinery will be required early in the coming year at Haleyville, Ala., if the project now under consideration by the city is carried through.

Arrangements for a new steam boiler and engine plant, together with a gas generating system, are being made at Charleston, S. C., by the Charleston Consolidated Railway, Gas & Electric Company.

Preliminary measures have been taken by the city council, Birmingham, Ala., for the enlargement of the municipal power and pumping plants at North Birmingham.

Preparations are being made to erect a new manufacturing plant for the Bradford Furniture Company, Nashville, Tenn., in place of the structure that burned.

The City Council of Boaz, Ala., will expend \$20,000 for the establishment of a water works system.

The F. S. Royster Guano Company, Norfolk, Va., is building at Montgomery, Ala., a factory structure 181 x 252 ft., which will be used for the preparation of guano for fertilizing purposes.

The Andrews Caoutchouc Brick Company, 40½ Sycamore street, Petersburg, Va., has incorporated with \$100,000 capital stock to establish a plant for the manufacture of a composition brick produced chiefly from wood pulp. The company will require one 50-hp. engine, a 75-hp. boiler and other equipment.

The plant of the American Mfg. Company, Chattanooga, Tenn., which was recently burned, causing a total loss of about \$40,000, will be rebuilt. The company manufactures harness and builders' hardware specialties and will require some special machinery for the new factory. J. B. Robinson is president, D. M. Kyle, vice-president, and W. N. Kyle, secretary.

Western Canada

WINNIPEG, October 8, 1910.

The Winnipeg Board of Control is calling for tenders, to be received by October 20, for a 15-hp., 60-cycle induction motor and silent chain drive, for an 8-ft. fan at the city's terminal power station.

The Otis-Fensom Elevator Company proposes to erect a machine shop in Winnipeg for manufacturing and adjusting elevator parts.

The Algoma Steel & Bridge Company is building a new bridge over the Red River at Winnipeg. There has been some delay because of backwardness in the delivery of structural material by the Hamilton manufacturers. The new bridge will have double street car tracks, a 26-ft. roadway and sidewalk. The drawbridge will be operated by electricity.

The capital of the Alberta Iron Rolling Mills Company, which proposes to establish a plant at Medicine Hat, Alberta, is \$150,000. Of this amount, \$10,000 is to be expended on buildings and \$80,000 on equipment.

The machine shops of the Canadian Pacific Railway Company at Fort William and those of the Canadian Northern Railway Company at Port Arthur are being extended.

Regina's new street railroad will be ready for the steel in the spring. At a meeting some days ago of the City Council the contract for steel switches was awarded to the United States Steel Products Company.

Law & Von Dohlen, Vancouver, are forming a company with \$150,000 capital stock to manufacture the Gray instantaneous automatic water-heater.

The Winnipeg Board of Control will receive sealed tenders up to October 7, for the manufacture and delivery of a motor car for use on standard gauge railroad track.

The city of Prince Albert, Saskatchewan, has under consideration a scheme to develop the power resources of Lacolle Falls. An expert has prepared a report on the undertaking. The cost would be \$450,000 and the time required 26 months. The report suggests that, as the hydraulic machinery needed must be of a specially complicated type, owing to the fluctuations of the river, tenders be obtained

from European makers, "many of whom," he adds, "we are now in communication with on other matters."

At a meeting of the Medicine Hat (Alberta) City Council the mayor and secretary-treasurer were authorized to sign a contract with Chapman & Walker, Toronto, for a Siemens generator and switchboard for the power plant which the city is building. Crossby gas engines are included in the contract, the price of the whole being about \$25,000.

The Southwest

KANSAS CITY, Mo., October 10, 1910.

There continues to be a perceptible livening up in trade through the more important industrial districts of the Southwest. Activity in the lead and zinc mining regions is notably pronounced, as compared with the dullness of the late spring and summer; and the development work that has been ordered undertaken in behalf of large mining interests will result in further heavy purchases of equipment, supplies, &c., within the coming months.

At the manufacturing centers, plants utilizing wood-working machinery are among the best customers of sales-agencies and dealers. Quite a number of furniture, stave and barrel factories, handle plants, sash and door factories, interior finishing shops, planing mills and the like are either starting up newly or increasing their output. Vehicle builders are in the same class.

From municipalities, central power and lighting stations, traction companies and private water, irrigation or drainage systems the demand remains constant, and in the general industrial field there is a fair amount of buying; so that, taken altogether, the situation appears to be most promising.

Work on an electric power station of considerable size has been started by the Southwestern Interurban Railway, Arkansas City, Ark.

The Ontario Mining Company has begun the erection of a 400-ton ore concentrating plant near Joplin, Mo.

Wesley Kouns, Salina, Kan., who operates a plant for the manufacture of stackers, is reported to have decided upon the erection of a new factory building at Bethel, Kan.

The City Council at Pittsburg, Kan., has engaged an engineer to prepare plans and specifications for the new pumping plant and water distribution system to be installed there during the coming winter.

The St. Marys Machinery Company, St. Marys, Ohio, has the contract for a gas engine to be operated at the municipal power plant in Russell, Kan. Valves, hydrants and other apparatus for the water works system to be installed there will be furnished by the Darling Pump & Machine Company, Oklahoma City, Okla.

It is unofficially reported from Shawnee, Okla., that the Chicago, Rock Island & Pacific Railway will build an electric power plant at its shops there, with a view to operating all of the machinery by means of motors. This system has been partially used heretofore on current supplied by the Shawnee Gas & Electric Company, and it is now desired to extend it.

The installation of a waterworks system, with deep well pumps, is proposed at Eldorado, Okla.

The installation of pumping machinery for municipal service is under consideration at Ellinwood, Kan.

The Paul Stone Company has been organized at Rockport, Texas, to operate a quarry and install machinery for rock crushing.

It is reported from Fairview, Okla., that the city power and lighting plant, which is equipped with two Westinghouse generators of 150 kw. capacity, driven by gas engines from the shops of the Weber Gas Engine Company, Kansas City, is to be enlarged and improved.

The Texas & Pacific Railway Company is adding a new shop to its plant at Marshall, Texas. This will be used for work on trucks.

Arrangements are being completed at the plant of the Greene-Cananea Mining Company, Cananea, Sonora, Mexico, for the installation of two steam turbines and generators of 3700 kw. capacity. A battery of eight large McDougall furnaces is being erected and a new reverberatory plant will be ready for operation within the next few months.

A new mining company, principally composed of the same interests, is now being organized to take over the property of the Live Oak Development Company and extend its operations. For this purpose considerable additional machinery will need to be purchased.

The City Council of Axtell, Kan., is preparing to establish a waterworks system.

Plans have been ordered by the city of Enid, Okla., for the enlargement of its waterworks system.

The Mutual Mfg. Company, Neosho, Mo., is considering

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the erection of a factory at Fort Worth, Texas, at a cost of \$150,000, for which it will receive a bonus of \$10,000 from the city.

The Blacksmith Fork Light & Power Company, Salt Lake City, Utah, has been incorporated with \$100,000 capital stock. The officers of the company are M. S. Browning, president; Alfred Budge, vice-president; A. B. Irvine, secretary and treasurer.

The Northwest

MINNEAPOLIS, MINN., October 10, 1910.

Municipal, town and county contracts for power and pumping machinery, steel towers and tanks, pipe lines, valves, hydrants, bridges, viaducts, culverts, incineration plants, &c., which have been one of the principal supports of the market, are diminishing in number, as the orders for rock crushing, road making and construction equipment did earlier; but whatever losses there have been in this respect are more than compensated for by increasing buying in behalf of shops, foundries, mills and factories of all kinds which are busy on orders for fall, winter and even spring delivery. Low pressure boilers are in considerable demand, as there is now a rush to get heating plants of every description in operating condition before the arrival of cold weather; and purchases of auxiliary apparatus, which were put off, as usual, until the last thing, are being largely made at this time. Sales of electrical machinery continue heavy, motors, controllers, protective devices, transformers, switch-board instruments, &c., being particularly required. Machine tools sell in about the ordinary volume for this season of the year, but inquiries from metal working plants are rather light, most of the equipment needed being for repair shops connected with other industrial enterprises. To this purpose second-hand machinery can be adapted, and some dealers have been making a good feature of that trade.

Work on the great power development in the vicinity of St. Croix Falls, for the General Electric Company of Minneapolis, is being pushed by the Stone & Webster Engineering Corporation, and the wiring of the generating station has been commenced. Electric current from the new turbine units will be available this winter.

G. A. Bingenheimer of the Diamond Iron Works, Minneapolis, who recently returned from an extended trip to the Pacific Coast, including visits to Portland, Seattle and Spokane, found business there rather quiet, but feels that his company is getting a very good share of the trade.

An investigation has recently been made at Custer, S. D., of the feasibility of transmitting power to that district from the hydroelectric plant of the Dakota Power Company at Pactola, S. D., for operating machinery in the mines there, including the mica producing properties of the Westinghouse Electric & Mfg. Company, Pittsburgh. If a transmission line is constructed, it can be made to serve numerous other plants along the way, thereby creating an extensive demand for motors and other equipment adapted to the requirements of the new system.

The American Bridge Company has the contract for constructing two steel frame settling basins of 300,000 gal. capacity at Chisholm, Minn.

Construction work is to be started by or before spring on a new electric traction line to be built through southern Minnesota by the St. Paul Railway Promotion Company, St. Paul, Minn. At a meeting held last week in the offices of the W. J. Hoy Construction Company, where headquarters are temporarily located, Philip W. Herzog was elected president, B. L. Goodkind, vice-president, James Kasson, treasurer, and H. C. Struchen, secretary. W. J. Hoy is one of the directors. Plans for power equipment will be taken up later.

An air compressor and drills have been ordered by the Snowshoe Mining Company, Mullan, Idaho, which recently resumed operations on its property, and additional machinery, including a new hoisting unit, will be needed as development work progresses.

Machinery for a concentrating plant of 100 tons daily capacity will be required in the near future by the Triangle Mining & Development Company, Missoula, Mont., on its property in Clinton, Mont. All of the equipment will be electrically operated on current obtained from the Missoula Light & Water Company's plant at Bonner, Mont., where hydraulic turbines of 3500 hp., built by J. Leffel & Co., Springfield, Ohio, are installed. Other improvements are also to be effected. Development work is now progressing steadily, a large air compressor and drills furnished by the Ingersoll-Rand Company being in service, and additional equipment is to be provided as required.

The Hypotheek Mining Company at Kingston, not far from Wallace, Idaho, has decided to operate its machinery in future by means of electric motors and is arranging for

the installation of a generating set to take the place of the steam plant now in service.

A new water works system will be constructed by Onida, S. D., at a cost of \$10,000.

The Valentine Brothers Mfg. Company, Minneapolis, Minn., manufacturers of gasoline engines, is having plans prepared for a one-story factory building 80 x 200 ft., to be erected at a cost of \$10,000.

The Northern Insulating Company, 1340 University avenue, St. Paul, Minn., manufacturer of a product used for heat insulation, is erecting a large manufacturing plant, the main building of which is 65 x 245 ft., of concrete brick and steel construction. In addition to this there will be a power house 65 x 66 ft. and a warehouse 112 x 260 ft., one story. Contracts for buildings and machinery have all been let.

North Pacific Coast

SEATTLE, WASH., October 7, 1910.

In all branches of the machinery trade there has been frequent occasion lately for remarking upon the fact that the Pacific Coast is not only losing its dependence upon Eastern manufacturers for equipment of any kind, but actually leads in many of the lines peculiar to its principal industries, such as logging, milling, woodworking, mining, canning, &c. In order to realize this one has but to inspect the numerous improvements brought out during the present year by manufacturers located in Portland, Tacoma, Seattle, Everett and other cities of this section and to compare the machinery of their design with other equipment for similar service originated elsewhere in the country. So far as differences in efficiency exist, they are more than likely to be found in favor of the Coast product. When the further fact is considered, also that it has long been the custom of Eastern builders to recognize the severe conditions of service imposed upon machinery in operation all through this territory, as instanced in the timber cutting industry by the heavy logs handled, the speed at which the work is done, &c., and to design their apparatus accordingly, it will be seen that the progress made here within the past decade is worthy of some note.

It is reported from Spokane, Wash., on what appears to be authentic information, that the Washington Steel & Iron Company, whose headquarters are stated to be there, is planning the erection of a furnace plant near Leavenworth, Wash., for the treatment of magnetic iron ore from a property which the company controls.

The Berlin Machine Works, through its district office in Spokane, Wash., where it is represented by A. N. Peel as district manager, has had a good run of business this season, despite the slackness in some lines of the machinery trade, and can show a large number of successful installations in that territory.

The M. A. Phelps Company, Cusick, Wash., has let contracts for the construction and equipment of a large new timber cutting plant to be built on the new branch line of the Idaho & Northern Washington Railway at Pend d'Oreille river crossing.

An extensive woodworking plant, electrically operated, will probably be erected this fall at Elma, Wash., by the Chehalis Fir Door Company.

The Swan-Hamann Company, White Salmon, Wash., has installed an electric generating set for lighting purposes and will probably extend this system, later, throughout the mill for driving machinery by means of motors.

Porter Bros., Spokane, Wash., have secured a large site in Portland, Ore., on which they will build a machine and forge shop, warehouse, &c., for use in the assembling and maintenance of railroad construction outfits. It is located at the foot of Chautauqua street on the tracks of the Oregon Railroad & Navigation Company.

H. L. Neace, Medford, Ore., is interested in quotations on rivetted steel pipe and equipment for hydraulic placer mining.

The Hallidie Machinery Company, Seattle, Wash., is offering a very complete line of second-hand machine tools and power equipment for repair shops, a specialty being made of the logging and sawmill trade.

Manganese sheaves, whose wearing qualities have withstood the most severe tests of service, are being featured this season in the sales of the Columbia Engineering Works, Portland, Ore.

The Moran Company, Seattle, Wash., recently installed in the plant of the Monarch Lumber Company, Portland, Ore., a water tube boiler of 1000 hp. constructed in its shops.

The Coos Bay Mfg. Company, North Bend, Wash., has taken some large season contracts and may extend its production facilities before the end of the current year.

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The Holland-Cook Mfg. Company, Eatonville, Wash., has secured the shops of the C. E. Littell Company, near Tacoma, and is making some improvements. Wood columns and other specialties will be the product of the plant.

A machine shop, in which the equipment will be motor driven, is being erected on the property of the Marsh Mining Company at Burke, Idaho.

The Irvington Machine Works, Portland, Ore., which specialize in woodworking machinery, is offering saw mandrels of a new and improved type which have features of considerable interest to prospective users.

I. L. Skeith, Vancouver, B. C., who was manager for some years of the sawmill machinery department of the Allis-Chalmers Company, Milwaukee, and has more recently been connected with the Sumner Iron Works, Everett, Wash., left last week on an extended trip East in the interest of a new plant, including foundry and machine shops, which will probably be built early in the coming year by another company at a point in British Columbia.

Machinery for ore concentration and other purposes will be required before long by the Blue Grouse Tungsten Company at Loon Lake, Wash.,

The Rand Iron Works, Vancouver, Wash., has been incorporated with \$15,000 capital stock to take over a plant which is now in operation. Some new machinery will probably be purchased at a later date. Henry Roc, Masonic Building, Portland, Ore., is president of the company.

The Brown Portable Elevator Company, Portland, Ore., will establish a branch at Saginaw, Mich., where it has secured a building which it is remodeling and fitting up for manufacturing purposes.

dition to its plant 45 x 100 ft., of concrete and steel construction, which will be equipped with a 5-ton electric traveling crane. The company advises that it is not in the market for any equipment at the present time.

The Colby Motor Company, Mason City, Iowa, has been organized, with a capital stock of \$1,000,000, to engage in the manufacture of automobiles. Forty acres of land near the city have been purchased and the company is planning the construction of a five-story building, 150 x 450 ft. The officers are W. S. Colby, president; A. H. Gale, treasurer, and George Howland, secretary.

The Iowa Falls Gas Company, Iowa Falls, Iowa, has sold its plant and business to F. N. Litton of Chicago and C. M. Butterworth of Detroit. The new owners have taken possession and will improve the plant and make new extensions of service lines.

The Des Moines Saw Mill Company, Des Moines, Iowa, has been incorporated, with a capital stock of \$50,000. G. C. Hubbell, Verne Clark and D. D. Langton are the incorporators. The company will erect a large mill at the corner of Ninth and Market streets.

The Union Pacific Railroad Company has taken out building permits at Omaha for storehouses, mills, shops and additions to cost \$235,100. The list of improvements includes a sand blast and varnish shop, a chemical storage building, a dry kiln, a substore, a pony sawmill, addition to roundhouse and a mill to cost \$160,000. The new buildings will be erected by Geo. B. Swift & Co., contractors, Chicago.

Southern Texas

AUSTIN, TEXAS, October 6, 1910.

The census returns giving the populations of the principal cities of Texas show that the largest percentage of increase over the census of 1900 was in those places where concerted efforts on the part of the citizens had brought about the establishment of manufacturing plants. This is particularly true of Fort Worth which showed an increase of 174 per cent. The lesson promises to be a valuable one for other cities and towns. In San Antonio, Houston, Galveston, El Paso, Austin, Waco and Dallas, and many of the smaller towns, preparations are being made to organize a vigorous campaign for more factories. It is claimed that the time has arrived when Texas should become a much greater manufacturing State than it now is. This factory movement is expected to lead to the investment of considerable home money in manufacturing enterprises.

E. H. Young of Galveston is erecting a cotton-seed delinting plant at Texas City. It will have a daily capacity of about 300 tons of cotton-seed.

W. B. Campbell and associates will erect a fruit and vegetable canning factory at Goliad, Texas, at a cost of about \$10,000. Mr. Campbell has donated a site for the proposed plant.

The Harlingen Ice & Gin Company will enlarge its plant at Harlingen, Texas.

The Beaumont Cotton Oil Company has practically finished the erection of its new refinery and other buildings at Beaumont. The plant is equipped with six large presses and when in full operation it will crush 120 tons of seed per day. More than \$125,000 is being invested in the enterprise.

The town of Cuero, Texas, is erecting a new pumping plant at the artesian wells from which the municipal water supply is obtained.

The city of El Paso took possession of the water works plant of the International Water Works Company on September 30. Under its municipal ownership the plant and distributing system will be improved in many respects. The pumping station will be rebuilt and the water mains extended.

The sewerage disposal plant that is to be installed by the city of El Paso will cost about \$100,000. It was designed by Smith & Co. of Portland, Ore. It is announced that the city of Juarez, Mexico, situated opposite El Paso, will install a similar plant, both as to size and design.

The American Smelting & Refining Company is considering plans for the enlargement of its smelter at El Paso. Furnaces will be added and new equipment installed. It is proposed, it is said, to make this plant the largest copper smelter on the continent. The company recently contracted for smelting the ores of large producing mining companies in New Mexico and Arizona, which creates a necessity for the enlargement of the plant.

The William M. Rice Institute of Houston, of which Edgar Odell Lovett is president, has adopted plans for engineering and power plants. It is announced that they will represent an expenditure of \$65,000 for machinery alone. The equipment will consist of three generating plants, in-

The Farther Central West

OMAHA, NEB., October 10, 1910.

Trade during the past week has been fairly active and the outlook for the immediate future is encouraging. Current business, however, still consists almost entirely of purchases made to fulfill requirements that could no longer be neglected, and for the new projects that are under consideration it is difficult to bring negotiations to a close. Owing to the general disposition to wait until after the November elections before making any decisive moves, the two closing months of the year should be relatively very active. Meanwhile, the hand to mouth character of the buying compels the constant placing of small orders, or of conditional season contracts for which billing is made at the time of shipment, and the shops everywhere through this territory are running along with an appearance of prosperity that would indicate better times than actually exist.

Bids on a boiler of 100 to 150 hp., with valves, piping, &c., and a new pumping engine of 2,000,000 gal. daily capacity, will be taken about December 1 or later by the Oskaloosa Water Company, Oskaloosa, Iowa.

The Ft. Dodge Portland Cement Company, recently organized with a capital stock of \$3,500,000, which may be addressed in care of F. J. Tischenbanner, Gilmore, Iowa, is planning the construction at that place of cement mills for a capacity of 5000 barrels daily. The main offices of the company, when in operation, are to be located at Ft. Dodge, Iowa.

Among orders recently taken by the McDonnell Iron Works, Des Moines, Iowa, municipal contracts have been prominent.

The water system of the Chicago & Northwestern Railway Company at Marshalltown, Iowa, is to be completely remodeled, necessitating the purchase of some new equipment.

If the water works at Ottumwa, Iowa, are taken over by the city, as now contemplated, new pumping machinery and other equipment will be purchased. The matter is to be decided at the election November 8.

Equipment to be purchased for the new water works system at Limon, Colo., will include a steel tower and tank of 70,000 gal. capacity, two triplex power pumps, two gasoline engines of 25 hp. each and auxiliary apparatus.

New machinery will be provided shortly for the Homestake mine and ore concentrating plant at Georgetown, Colo., which is now under the control of Schofield & White.

The authorities at Price, Utah, have contracted for a high pressure boiler of 150 hp. from the Erie City Iron Works, Erie, Pa., to be installed in the municipal power plant.

Construction work is to be started shortly on a new sampling and ore reduction plant for the Santiago Mining & Tunnel Company, Georgetown, Colo.

The Waterloo Cement Machinery Corporation, Waterloo, Iowa, has increased its capital stock from \$50,000 to \$150,000. The company now has under course of erection an ad-

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cluding engines and generators, boilers and compressors, and the pumping machinery which will be used to furnish water for the institution.

The Lone Star Brewing Company, San Antonio, will erect a \$200,000 ice plant and a \$30,000 warehouse. The ice plant will have a daily capacity of 250 tons. James Wahrenberger of San Antonio is the architect who is preparing the plans and specifications for the proposed improvements.

The Davis Coal & Coke Company, Baltimore, Md., which recently entered the Texas coal trade, is equipping two coal barges at Texas City with hoisting machinery. The first steamship, the Jacob Luckenbach, employed in this new trade arrived at Texas City on October 4 with 2800 tons of coal from Baltimore. It is planned by the company to make a specialty of supplying the marine trade, coaling all ships entering the ports of Texas City and Galveston, as well as supplying several of the larger railroad systems in Texas with fuel.

It is announced that the shops of the Southern Pacific Railroad at Tucson, Ariz., which were destroyed by fire September 30, will be rebuilt on a larger scale than before. The total loss, including machinery, equipment and supplies, was about \$100,000.

A new glass factory of 21 tons capacity is being erected at Fort Worth, Texas. The company will be known as the Fort Worth Glass Factory and has a capital stock of \$100,000.

Government Purchases

WASHINGTON, D. C., October 10, 1910.

The Isthmian Canal Commission, Washington, D. C., will open bids October 14, under Canal Zone, 4762-A, for furnishing two steam pile-driving hammers, total weight 10,150 lb.

Bids will be opened at the Rock Island Arsenal, Rock Island, Ill., October 20, for furnishing one 50-hp. 50-volt compound wound double-connected motor, with pulley, slide rails and starting rheostat 400 rev. per min., and one two-stage belt-driven air compressor having an approximate capacity of 200 cu. ft. of air per min. at 160 rev. per min.

Bids were opened at the U. S. Naval Academy, Annapolis, Md., for furnishing power plant equipment for the Academy. The bidders submitted various alternate bids. The bids for the complete work are as follows:

Bidder 1, The D'Olier Engineering Company, Philadelphia, Pa., \$132,760; 2, The Lord Electric Company, New York, \$166,482; 3, The Camden Heating Company, Camden, N. J., \$134,950; 4, The John W. Danforth Company, \$141,805; 5, The Evans Admiral Company, New York, \$137,136.

The Isthmian Canal Commission opened bids October 1, under Canal Circular 596, as follows:

Class 1, two stony gate valve machines, one right and one left, complete as covered by items 1 to 270 inclusive—Bidder 1, The American Ship Windlass Company, Providence, R. I., \$48,000; 2, The D'Olier Engineering Company, Philadelphia, Pa., \$33,000; 3, The Poole Engineering & Machine Company, Baltimore, Md., \$32,350; 7, The Wheeling Mold & Foundry Company, Wheeling, W. Va., \$29,000.

Class 2, for two cylindrical valve machines as covered by items 1 to 142—Bidder 1, The American Ship Windlass Company, Providence, R. I., \$8000; 2, The D'Olier Engineering Company, Philadelphia, Pa., \$7420; 3, The Poole Engineering & Machine Company, Baltimore, Md., \$5520; 6, The Rosedale Foundry & Machine Company, Pittsburgh, Pa., \$8000; 7, The Wheeling Mold & Foundry Company, Wheeling, W. Va., \$9500.

Captain F. W. Alstaetter, U. S. A., opened bids at Wheeling, W. Va., September 27, for one power house complete with machinery at dam No. 20, Ohio River, as follows:

Lot A—Bidder 1, The G. & W. Mfg. Company, New York, \$30,973; 6, Hile & Higgs, Parkersburg, W. Va., \$30,500; 9, The New Jersey Foundry & Machine Company, New York, \$38,813.

Lot B, for two boilers and accessories—Bidder 1, The G. & W. Mfg. Company, New York, \$5600, Heine Safety; 3, The E. Keeler Company, Williamsport, Pa., \$4697, Keeler water tube boiler; 5, The Heine Safety Boiler Company, Pittsburgh, Pa., \$5000, Heine Safety; 8, The James J. Walker Company, Pittsburgh, Pa., \$4980, Heine Safety, and \$5665, Heine water tube.

Lot C, one boiler feed pump—Bidder 1, The G. & W. Mfg. Company, \$245, Worthington; 8, The James J. Walker Company, Pittsburgh, Pa., \$210, Worthington; 9, The New Jersey Foundry & Machine Company, New York, \$245, Worthington.

Lot F, one pneumatic displacement pump—Bidder 1, The G. & W. Mfg. Company, New York, \$335; 9, The New Jersey Foundry & Machine Company, New York, \$365.

The New York Electrical Show

The fourth annual New York Electrical Show, which opened October 10 at Madison Square Garden and will continue until October 20, is not as replete with machinery exhibits as have been some of the previous shows. Nevertheless, there is much to interest machinery manufacturers in general, as a number of large pieces of apparatus electrically operated are on exhibition. The show, on the whole, however, is largely devoted to the display of electric novelties and household specialties.

The exhibit of the General Electric Company is as usual a large one, and is the center of interest to machinery men, many of whom have made the General Electric booth their headquarters during the show. General Electric motors are shown applied to a number of different kinds of equipment, and their adaptability for operating blowers, fan equipment and other apparatus is demonstrated. The American Metal Hose Company, New York, has an interesting exhibit showing a line of flexible metal conduits and piping. The Crane Company, Chicago, is exhibiting electrically operated valves, traps and steam separators, together with other steam supplies. The Cutler-Hammer Company, New York, shows electric switches for various purposes, but gives a large part of its booth over to the exhibition of flat irons, chafing dishes and other household devices. The Edison Storage Battery Company exhibits storage batteries and demonstrates their adaptability for operating electric vehicles and for emergency lighting outfits.

The Electric Testing Apparatus, New York, has an interesting exhibit of electrical testing apparatus. The Golds Mfg. Company is showing a line of motor driven

pumps for all purposes. The Joseph Dixon Crucible Company has a fine exhibit of graphite specialties. The Lansden Company, Newark, N. J., is showing a standard 1-ton electric truck for industrial use. The Otis Elevator Company exhibits a smaller type of electric elevator. The Rider-Ericsson Engine Company is demonstrating electrically driven pumps for domestic water supply. The Watson-Stillman Company is exhibiting its line of motor driven turbine pumps. The Independent Electrical Contractors' Association of Greater New York has a comprehensive exhibit showing samples of the work of the members of the association.

Correction.—In the description of the sheet metal straightening and cutting machine of the F. B. Shuster Company, New Haven, Conn., on page 788 of *The Iron Age*, October 6, an error occurred in the first paragraph. In the statement, "Instead of seven rolls it has five," the figures were inverted, for it is one of the features of the new machine that it has seven rolls instead of five.

The lockout and strikes of the bricklayers employed by New York contractors, having work in numerous cities, were ended October 6. An arrangement was reached after several conferences between the international officers of the bricklayers and the Mason Builders' Association of New York that when members of the association have work to do in cities outside of New York which are not covered by the present local trade agreement the union rules must obtain in these towns and cities. The present trade agreement will continue until it expires on December 31.

The Rock Island Plow Company's Growth

The Rock Island Plow Company's factory at Rock Island, Ill., large and modern as it already is, has been taxed to the utmost to supply the rapidly increasing demand for its products. On account of this, and in view of the continued increase in volume of business which the company has every reason to expect in the future, plans have been worked out for a new plant that will treble the present output within the next two or three years.

Such an undertaking takes some time for its accomplishment but contracts have already been awarded for five new buildings. They are as follows:

1. Forge shop. This will be one of the very few buildings in the United States with the monitor style of roof. It is under way and will be ready for use in two or three months. This style of roof not only affords the maximum of light but permits the maximum of ventilation, regardless of the weather. The upper rows of windows, when open, resemble louver boards, shedding rain while permitting the escape of gases and the free entrance of air. The monitor roof slopes to the center instead of the sides, avoiding the accumulation of ice along the eaves, with its attendant annoyance and danger.

2. Pattern and experimental building; three stories.

3. Warehouse; eight stories, six to be erected at once, the others to be added at a later date. This immense building will be equipped with an elaborate trolley system which will greatly facilitate the storing and shipping of goods.

4. Large addition to present foundry. This is now well under way, and the plans contemplate a thorough overhauling of the entire foundry equipment. A modern charging floor will be erected and a double-track trolley system will add greatly to the efficiency of this important department.

5. New building for core-making department. This, of course, will be closely connected with the foundry, and will be entirely modern.

Reinforced concrete will enter largely into the construction of the new buildings. They will be fire-proof, and will embody the most advanced ideas in factory construction.

All will be provided with up-to-date sanitary plumbing. In addition to convenient washrooms, shower baths will be installed in the foundry and forge shop. These efforts to improve the surroundings and environment of the employees will no doubt be fully appreciated, and result in attracting the best class of workmen.

Other buildings will follow as fast as they can be reached, and when the entire plant is completed it will be a model one, enormous in area, equipped with the most modern machinery and carefully planned for the purpose of transforming raw materials into finished product by the most approved methods and with the greatest possible saving of time and labor.

To secure the necessary room and make possible this extension of the plant, the company has purchased a large amount of adjacent property and the City Council has vacated portions of several streets. These vacated portions are so located and so surrounded by the company's property that the public will suffer no injury from this action of the city.

The work of getting out goods for the coming season must not wait for the new plant, and the present plant has resumed operations after a very brief shutdown for inventory. Vigorous and careful preparations are being made for taking care of the greatly increased trade confidently expected. New and improved machinery is being installed wherever it will increase the capacity of the shop, and no effort will be spared to make the present factory equal to all demands made upon it pending the completion of the new one.

The Virginia Iron, Coal & Coke Company's Annual Report.—The report of the Virginia Iron, Coal & Coke Company for the year ended June 30, 1910, shows a deficit of \$129,927, against a deficit the previous year of \$311,730. President Henry K. McHarg says: "During most of the year just passed, we have continued to keep three furnaces in blast and most of our ore mines in operation, and have produced 132,277 tons of coke pig iron and 2,296 tons of charcoal iron. We delivered during the year 142,534 tons of coke iron and 1499 tons of charcoal iron, so that, including the amount on hand July 1, 1909, we had on hand July 1, 1910, 145,737 tons of coke iron and 2397 tons of charcoal iron. We mined 1,128,327 tons of coal and made 275,768 tons of coke. As has always been our practice the iron on hand is carried at cost on our books."

The annual report of the Colorado Fuel & Iron Company, to be published shortly, will show that the year ended June 30 last was one of the most prosperous in the history of the company. Gross earnings amounted to \$23,639,813, an increase of \$3,295,182, or 11.3 per cent. Net earnings totaled \$3,742,615, as compared with net earnings of \$2,901,011 for the previous fiscal year, an increase of \$841,604, or 29 per cent. The surplus after charges in the last fiscal year amounted to \$1,506,819, an increase of \$648,443, or 75.5 per cent. The company, on June 30 last, had a profit and loss surplus of \$1,039,314.

The German labor troubles in the shipbuilding and other metal working trades have been settled. A cablegram from Hamburg, dated October 6, states that the shipbuilders, who have been on strike for two months, will get an increase in wages equivalent to 4 or 5 cents a day and a reduction in their working hours to 55 hours a week in Hamburg, and 56 in other towns. The changes will begin January 1. The strike involved many thousand workers, who demanded an increase of 10 per cent. in wages and a 53-hour week.

The Executive Committee of the Brotherhood of Machinists has sent to the Interstate Commerce Commission a protest against the recent petition presented to the commission by various railroad labor organizations urging that the proposed advance in freight rates be granted. The protest states that if increased wages are taken as an excuse for higher rates there will be no end and that the general wage question will follow around a circle.

The first bids for 14-inch armor piercing projectiles were opened at the Navy Department October 6. These projectiles are intended for use in the new guns on the 27,000-ton dreadnoughts authorized at the last session of Congress. The lowest bidder was the Firth Sterling Steel Company, which offered to furnish 2,400 14-in. projectiles at \$410 each.

The puddling department of the plant of the Wilkes Rolling Mill Company at Sharon, Pa., started last week. This company manufactures iron sheets and tin plates and muck bar.

The Kittanning Iron & Steel Company, Kittanning, Pa., states that its rolling mill has 33 puddling furnaces, not 35 as recently printed. Its Rebecca Furnace is not in blast at present.

The Alco car which won the Vanderbilt Cup race October 1, was largely constructed of chrome vanadium steel, made by the United Steel Company, Canton, Ohio.

Members of the firm of Rogers, Brown & Co., from Cincinnati, Chicago, Buffalo and New York are holding their annual meeting in New York this week.

Personal

Sir Robert A. Hadfield, Sheffield, England, has been spending some time in California for the betterment of his health.

George G. McMurtry, chairman of the American Sheet & Tin Plate Company, will arrive in New York on the Lusitania, October 13. A number of the British guests of the American Iron and Steel Institute will arrive by the same steamer.

The Dominion Government has appointed Charles McDonald, now of Guelph, Ont., to succeed Mr. Fitzmaurice on the Quebec Bridge Commission. Mr. Fitzmaurice, an eminent English construction engineer, has resigned because of continued ill-health. Mr. McDonald, though Canadian born and recently making his home in Canada, made his reputation in the United States. He was chief engineer of the American Bridge Company, and has had to do with some of the largest bridge contracts carried through by that corporation.

Dr. Leonard Waldo, New York, and H. A. Baxter, Syracuse, N. Y., were elected members of the Iron and Steel Institute at the meeting held last month at Buxton, England.

D. B. Meacham, of Rogers, Brown & Co., Cincinnati, arrived in New York this week after a four months absence in Europe.

James A. Campbell, president of the Youngstown Sheet & Tube Company, Youngstown, Ohio, has sailed for Europe on a pleasure trip.

H. L. Williams of Hickman, Williams, & Co., Chicago, and Graham MacFarlane, Louisville Ky., president of the Red River Iron Company, have returned from a vacation trip to Europe during which they together visited points of interest in Germany, France, Holland, and Belgium.

Lee C. Moore, of Lee C. Moore & Co., construction engineers, Lewis Building, Pittsburgh, has returned from Europe.

Melvin H. Campbell, formerly connected with the Standard Chain Company, Pittsburgh, has resigned to accept the position of superintendent of the Spaulding Milling Machine Company, Cleveland, Ohio.

George M. Hunter, for some years assistant manager of the plant of the American Bridge Company at Ambridge, Pa., has been appointed general manager of the new plant to be erected by this company at Gary, Ind.

Robert H. Thompson, who has been chief clerk of the Carnegie Steel Company's Cincinnati, Ohio, office nearly five years, has been promoted to a more responsible position in the New York office of that company, with the same official title.

The Pennsylvania Engineering Works, New Castle, Pa., has recently received a contract from the Dominion Steel Corporation, Sydney, Nova Scotia, for a 15-ton Bessemer converter, which is to be of the same pattern as two converters furnished by the same builder for this plant about three years ago. The Pennsylvania Engineering Works is completing its contract with the Jones & Laughlin Steel Company, Pittsburgh, which includes run out tables for the blooming mill, ladles and metal mixer for the Aliquippa plant. Its contract with the Bethlehem Steel Company, South Bethlehem, Pa., is also showing progress, blast furnace F being nearly completed, while furnace G is about one-half finished. The two 20-ton converters to be used in connection with the Bethlehem Company's open hearth plant will shortly be shipped and it is expected that the new Bessemer plant will be ready for operation November 25. The Pennsylvania Engineering Works is not so busy in its foundry but is operating its machine and boiler shops to capacity on miscellaneous contracts.

The Maxwell-Briscoe Motor Company's Improvements

Rapid transformation of the two plants of the Maxwell-Briscoe Motor Company at Kingsland Point and Tarrytown, N. Y., is being effected by the erection of many new buildings and the reclamation of a large tract, now partially under water, for further building expansion. When these improvements are completed the two plants on opposite shores of Kingsland Cove, will be practically joined and 12 acres will be available to meet the growing pressure upon manufacturing conditions. The company will then have one of the largest plants in the automobile industry. While construction is going on in many parts of the premises the company has been very active in the matter of plant betterment, having expended more than \$165,000 in new machinery and equipment.

Incidental to the general plan of factory enlargement which has been necessitated by the growth of business, the company has built a three-story experimental and engineering building, 50 x 175 ft., and installed the most modern machinery, making it unsurpassed by any in the industry. As in every large automobile factory this department is of the greatest moment, the work being reflected in almost every phase of motor car making.

Another feature of the Maxwell betterments, providing a great increase in manufacturing economy, is the new foundry for aluminum work adjoining the present bronze and brass foundry. This building is being made especially adaptable for a new method of pattern making and casting—the invention of Hugh McPhee—which involves only a fractional part of the cost that is necessary in all other methods. The development of this department is one of the many channels by which the Maxwell-Briscoe Motor Company has brought the highest grade of workmanship to the lowest basis of cost. Other branches of its work are being benefited by the construction of a new motor-testing shop, 50 x 125 ft., with a 50,000 gal. gasoline tank set on a concrete cradle; a new parts and repair department, 50 x 200 ft., with saw-tooth roofs; a new administration building of three stories, 50 x 150 ft., a new woodworking shop, 75 x 75 ft., and new receiving and shipping sheds that will accommodate 32 freight cars.

New Bureau of Manufactures Publications

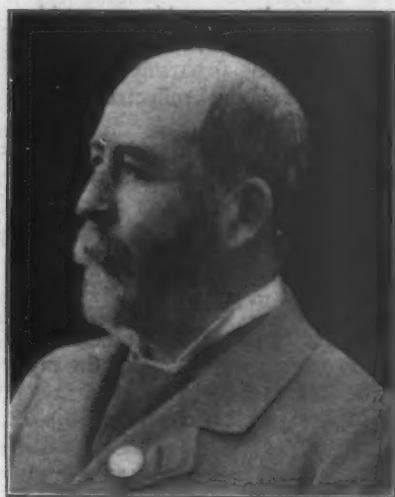
John M. Carson, chief of the Bureau of Manufactures, Department of Labor and Commerce, Washington, D. C., has issued two publications of special interest to manufacturers of machine tools and other machinery. One of these is No. 34 of the Special Agents Series and presents in connected form the reports by Captain Godfrey L. Carden on the machine tool trade in Austria-Hungary, Denmark, Russia, Netherlands and supplementary reports on Italy and France. This publication comprises 179 pages. Those who have followed the reports of Captain Carden, as issued from time to time by the Bureau of Manufactures, will be pleased to have the opportunity to get these reports in this form. The other publication is entitled, Tariff Series No. 3 A, giving the tariff on machinery, machine tools and vehicles in the various countries of Europe, North America, Central America, West Indies, South America, Asia and Australasia. It supplements Tariff Series No. 3, issued in May, 1907, containing all the changes affecting the rates of duty on machinery and vehicles that have since occurred in the various countries covered. It consists of 34 pages.

The blast furnace of the Perry Iron Company, which has been out of blast for relining, was blown in October 3. The cast house was also rebuilt.

Obituary

EDWARD P. MARTIN

The death is announced of a British ironmaster who was particularly well known in the steel trade in the United States—Edward Pritchard Martin, vice-chairman of Guest, Keen & Nettlefolds, Ltd., Birmingham, England, and a past president of the Iron and Steel Institute. Mr. Martin visited this country a number of times, one of these occasions being the New York meeting of the Iron and Steel Institute in October, 1904, and another in connection with the inspection of an Ohio steel plant in the interest of prospective bondholders in England. He was born in 1844 and was the eldest son of George Martin, who for nearly 60 years was mining engineer for the Dowlais Iron Company. In 1860 he was apprenticed to the Dowlais Iron Company and in 1869 he was appointed deputy general manager of the company. He became general manager of the Blaenavon Company in 1874



EDWARD P. MARTIN.

and directed the erection of the Bessemer steel plant at Blaenavon. At the same works he assisted in working out the dephosphorizing process of Thomas and Gilchrist, and for this he was awarded the Bessemer gold medal in 1884. He became general manager of the Dowlais Iron Company in 1882, and on the amalgamation of that company with the Patent Nut & Bolt Company he became vice-chairman and managing director of Guest, Keen & Co. He retired from that position in 1902, but retained a seat on the board of Guest, Keen & Nettlefolds. Mr. Martin was also a director of the Orconera Iron Ore Company, the Rhymney Railway, the South Wales Electrical Power & Distribution Company, and other commercial undertakings. In 1897-99 he was president of the Iron and Steel Institute, and he was also a past president of the Institute of Mechanical Engineers, of the South Wales Institute of Engineers and of the Monmouthshire and South Wales Coal Owners' Association.

EDWARD H. BUSCH, president of the Cincinnati Iron & Steel Company, Cincinnati, Ohio, died October 8, of cancer of the throat, aged 42 years. For some time previous to his death his illness prevented his active participation in business. He was born in Cincinnati, and at the age of 14 entered the employ of Mitchell-Tranter & Co. From this time until his death he was identified with the iron and steel business of his native city. At the time the company by which he was first employed was absorbed by the Republic Iron & Steel Company, he was sales agent and became a stockholder in the purchasing company, with which he remained as assistant to the district sales agent until his resignation in 1889. Then, with others, he organized the Cin-

cinnati Iron Store Company, the name of which was changed to the Cincinnati Iron & Steel Company, and was its president from the time of its organization until he died. He was also a director of the West End Bank & Trust Company, and Receivers and Shippers' Association and a member of the Business Men's Club, all of Cincinnati. He leaves six children.

FRANK P. ELDRIDGE, vice-president of the National Sewing Machine Company, Belvidere, Ill., died October 6, at the Congress Hotel, Chicago, of pneumonia, aged 43 years. He was born in Cleveland, Ohio, was a graduate of the Harvard law school, and resided in Chicago until 18 years ago, when the company of which he is vice-president moved its headquarters to Belvidere. He was a member of the Union League Club, Chicago Athletic Association, Automobile Club and Chicago Yacht Club. He was the only son of B. Eldridge, president of the National Sewing Machine Company.

GEORGE POOLE, president of the Poole Engineering & Machine Company, Baltimore, died September 23, at Hartford, Conn., where he had gone in the hope of recovering from a nervous breakdown. He was 54 years old. He succeeded his father, Robert Poole, deceased, as president of the Robert Poole & Son Company, changing the name of the concern. The Robert Poole & Son Company was the successor of the firm of Poole & Hunt.

C. W. REINOEHL, Steelton, Pa., superintendent of the frog and switch department of the Pennsylvania Steel Company, was almost instantly killed by the upsetting of a large touring car at Buena Vista, N. J., October 9. He was driving the car, the party being on the way to attend the American Street Railway Convention at Atlantic City.

JOHN M. WILLIAMS, president of the Williams Gauge Company, Pittsburgh, died October 9, at his home at Knoxville, Pittsburgh. He leaves a widow and one son.

National Roll & Foundry Company Extensions

The National Roll & Foundry Company, Farmers Bank Building, Pittsburgh, with works at Avonmore, Pa., is making large additions to its plant on account of the heavy increase in its business. In the foundry department a 15-ton air furnace will be added which, with the two furnaces now in use, will give a casting capacity of 45 tons of rolls per day, and will enable the company to supply the largest plate rolls required. Two 30-ton electric cranes are also to be installed in this department. An addition 40 x 80 ft. is being made to the machine shop, in which will be installed motor-driven roll lathes, designed and built by the company, and one 30-ton Alliance electric crane.

Some time ago this company received a contract from the Follansbee Brothers Company, Pittsburgh, for two 30-in. sheet mills, to be installed in its plant at Follansbee, W. Va., and they are now ready for shipment. Each mill has two stands of housings, extra heavy in construction, and designed to withstand and properly distribute all strains. The company is also building 16 30-in. sheet mills for the American Rolling Mill Company, Middletown, Ohio, which will be ready for shipment within the contract time. Eight stands of cold mills for the same plant are finished and ready for shipment.

The hearing of the Buffalo furnace interests before a representative of the Interstate Commerce Commission relative to the proposed increase in freight rates by the railroads on coke between the Connellsville district and Buffalo, which was to have taken place at Buffalo, October 5, has been postponed until October 24, owing to serious sickness in the family of one of the attorneys who is to argue the case.

Steel Works Labor Conditions

Exhaustive Federal Investigation of Wages, Hours and Accidents

One of the most extensive investigations of labor conditions in the iron and steel industry ever undertaken in this country is now under way. It is being conducted by the Bureau of Labor of the Department of Commerce and Labor in pursuance of Resolution No. 237 of the United States Senate calling for full information in regard to wages and hours of labor in iron and steel manufacture. Within the past month the various companies engaged in the manufacture of iron and steel in the United States have received blanks calling for the most detailed information. The Bureau of Labor says in its general instructions to manufacturers:

For the purpose of this investigation the iron and steel industry is to be understood as embracing all departments and operations *within the plant* concerned with the manufacture, storing and handling of the metals and the raw materials until the metal has been shaped in either hot or cold state by rolling, forging, pressing, drawing or casting (except sheet mills for tin and terne plate, which are not desired). Information is also desired for all shops which make repairs or parts for the use of the establishment, but not for those which primarily manufacture for the trade.

A sheet or set of sheets should be filled for each separate department. For instance, blast furnace department, Bessemer department, open hearth department, blooming department, cold rolling department, pattern shop, general repair, internal transportation system, rigging department, &c. It is most earnestly requested that each division of the plant or group of employees which may be clearly distinguished by the work done, or for accounting purposes, be kept separate on these forms.

For the inquiry as to wages the last payroll in May, 1910, is asked for; but in case the plant was shut down or was running with a greatly reduced force at that time the nearest normal payroll may be taken. The blanks for statistics of the wages and hours of labor call for the number of employees; number of days regularly worked per week; rates paid for regular time and overtime; customary hours per day from Monday to Friday, on Saturday and on Sunday; number of men who worked overtime during payroll period, with extra Sunday hours given separately; amount of bonus of premium earned during the payroll period, also deductions from an employee's gross earnings representing amount paid helpers and others; and, finally, the net earnings per employee per hour. Questions are asked as to the frequency of pay days and whether the pay day is later than the termination of the payroll period and how much. Particular inquiry is made as to continuous operations—whether employees are changed from day to night shift and *vice versa*, also how often such changes are made, with details of the arrangements for changing shifts, giving the longest employment period and the longest rest period resulting from such changes. Employers are also asked to furnish complete scales of wages in force in the years 1900, 1905 and 1910, also to state what changes in wages or hours of labor affecting a large proportion of their employees have been made in the 18 months ending June 30, 1910.

Investigation of All Accidents for Two Years

An important department of the inquiry is that into accidents in iron and steel works. A vast amount of labor will be entailed by the filling out of the accident blanks, since they call for details of every accident in iron and steel works in the United States in the two years ending June 30, 1910. The nature of the injury is called for, the number of days' absence from work which resulted and the extent of the injury where permanent, also the number of cases resulting fatally. Employing companies are asked to indicate whether a record is kept of accidents; what provision is made for the care of employees in cases of accident; who bears

the expense of treatment; whether compensation is made through insurance companies or directly by the company for loss of time due to accidents; what provision is made for employees totally or partly disabled permanently by accidents; what provision is made for the family or other dependents in case of death by accident. The inquiry also asks for particulars of appliances installed for preventing accidents, with results from their adoption. Another blank refers to any provision made for the retirement of superannuated employees, with details, also particulars of work instituted directly by the company for the welfare of its employees.

General Electric Upheld in Demurrage Protest

The Public Service Commission, second district, announces that it upholds the contention of the General Electric Company in challenging the legality of the steam railroad companies' demurrage rule which applies demurrage on inbound private cars belonging to the General Electric Company after such cars have been removed from the interchange track at Schenectady, N. Y., by the complaining company, and taken by its own power and upon its own tracks into its plant, such rule continuing to apply until the time of actual unloading within the plant. The complaint was made against the New York Central and the Delaware & Hudson. The commission rules as follows:

That these carriers have no lawful right to enter upon the tracks of the General Electric Company, beyond the interchange track, for any purpose, is beyond dispute; and it is well settled in law that the General Electric Company cannot require of either respondent the performance of railroad service upon its industrial tracks.

Such right must arise from ownership, holding by agreement and any extension of control through carrier's operation or carrier's liability. None of these extends to a loaded car delivered upon an interchange track to the car-owning company after removal by that company upon its own tracks by its own power from the interchange or place of delivery. Such a consignee having taken full possession and complete control is entirely free from all interference by the carrier with the disposition of the car or the carload.

Even if upheld the rule is incapable of practical enforcement, since the car and its lading after removal from the interchange track are in the exclusive possession and control of the industrial company, and obviously any requirement by the carrier or a report from the owning industrial company of the time of unloading as a basis for the assessment of demurrage charges could be successfully denied.

The commission further says that this rule is part of the Uniform Demurrage Code, adopted by the National Association of Railway Commissioners, and largely put in effect by carriers throughout the country. Such action, the commission says, has resulted in attainment of uniformity in demurrage rules to a degree which was not deemed possible a few years ago.

In this case the complaint attacked the rule in the demurrage code relating to averaging demurrage, known as rule 9, upon the claim that the rule unjustly and unreasonably separates cars into two classes—box cars (including refrigerating cars) in class 1, and freight cars of all other description in class 2.

The General Electric Company is building for the Indiana Steel Company, Gary, Ind., a seven panel switchboard to control feeders of 220 volts in its coke oven plant. The combined feeder capacity of this switchboard is 22,000 amperes at 220 volts and 25 cycles. The General Electric Company will furnish the entire controlling equipment, among which will be four 6000, six 3000, two 2000 ampere C.K. circuit breakers mechanically interlocked in pairs on the outside logs, and twelve 5000 ampere lever switches. All parts of the equipment consist of stock parts, nothing special being used.

E

S. DIESCHER & SONS,

Mechanical and Civil Engineers.

The Philadelphia Foundrymen's Association

Banquet and Entertainment

With delegations from the New England Foundrymen's Association, the Pittsburgh Foundrymen's Association and Newark, N. J., Foundrymen's Association as its guests, the Philadelphia Foundrymen's Association, Philadelphia, Pa., celebrated its 201st regular meeting with an elaborate dinner and entertainment on the evening of October 5th, given under the name of a "Quaker party." The programme was of quite a varied character. Headquarters during the day were maintained at the Manufacturers' Club, where a committee received and entertained the visiting members of the different foundrymen's associations. Early in the day a short business session of the association was held, routine business transacted and the following concerns were elected to membership in the association: Hickman, Williams & Co., Pennsylvania Building, Philadelphia, iron, coal and coke merchants; S. Obermayer Company, foundry supplies, C. Goldman, Philadelphia representative; Philadelphia Chaplet & Mfg. Company, J. I. Fasey, representative; Independent Mfg. Company, core compounds, Philadelphia, S. H. Baird, representative; Primos Chemical Company, Primos, Pa.; John J. Caine, iron and steel merchant, North American Building, Philadelphia; Naylor & Co., pig iron, ore and coke merchants, L. U. Park, representative; Real Estate Trust Building, Philadelphia, and Diller, Caskey & Keene, stove manufacturers, Philadelphia.

Automobile parties were formed during the afternoon, the visitors being taken to historic points of interest about the city. Trips were made to Fairmount Park, League Island Navy Yard and into the surrounding country, extending in one instance to Norristown, Pa., while some of the guests extended their visit over into the following day in order to visit foundry plants. In the evening an informal dinner was served at the House of Kugler, in Chestnut street above Broad street, where covers were laid for 150 members and guests. While the dinner was designated as a "Quaker party"—and plain language dominated in print—the function was fully up to the standard as to hospitality and good cheer, for which the Philadelphia Association has become famous. A feature of the menu was that it was virtually in song, a verse to the tune of "John Brown," especially written for each course, being sung before its service. The opening verse

Come, all our friends now gathered here
From dear old Keystone State,
And those from a foreign shore—
The old Mosquito State;
Our Yankee friends, we hail them, too,
And all of them we greet;
We'll banish strife from our midst
And hold communion sweet.

was sung to the tune of "Auld Lang Syne," as a welcome to the guests.

Thomas Devlin, president of the association, acted as toastmaster and welcomed in a few words the visiting foundrymen, guests and members, and then introduced Mayor John E. Reyburn, who took as his topic "The City of Philadelphia." The Mayor's speech dwelt largely on the welfare of the city and the efforts expended to make it not only the most beautiful, but also the most important from a commercial and manufacturing standpoint. Thomas K. Ober of the Sanitary Mfg. Company, Philadelphia, responded to the toast, "The Quaker; Why, Whence, Whither and Wherefore." In the course of his remarks he described the founding of the city of Philadelphia and stated that it was through the influence of the Quaker that it was so conservative. It was the Quaker, he said, who had

brought about the building up, not only of the city, but also the great commonwealth of Pennsylvania, making it the greatest diversified manufacturing community in the United States. Louis S. Amonson, president of the People's National Fire Insurance Company, alluded in his address to the conditions now existing in this country between labor and capital, largely due to constant agitation of class against class.

Henry A. Carpenter, Providence, R. I., responded for the New England Foundrymen's Association; Herbert E. Field, Pittsburgh, Pa., responded on behalf of the Pittsburgh Foundrymen's Association, while the sentiments of the Newark Foundrymen's Association were voiced by Arthur E. Barlow of the Barlow Foundry Company, Newark, N. J. Fred. S. Stockwell, secretary of the New England Foundrymen's Association, and other visiting foundrymen also made brief addresses.

Following the speechmaking an extended vaudeville programme was given under the direction of J. Howard Sheeler, which concluded the evening's entertainment. The following general committee had charge of the arrangements for the entertainment and dinner:

Brown, Dr. E. E., chairman, E. E. Brown & Co.
Bickley, Walter T., Penn Steel Casting & Machine Company.
Bernstein, Wm., Bernstein Mfg. Company.
Borgner, Cyrus, Cyrus Borgner Company.
Cook, Edgar S., Warwick Iron & Steel Company.
Coane, W. J., Dixon Crucible Company.
Davies, Geo. C., Pilling & Crane.
Dunning, W. T., Chester Steel Casting Company.
Eynon, Thos. M., Eynon-Evans Mfg. Company.
Haldeman, H. L., Pulaski Iron Company.
Hallowell, W. S., Harrison Safety Boiler Works.
Lewis, Wilfred, Tabor Mfg. Company.
Miller, A. A., *The Iron Age*.
Matlack, Geo. C., Wm. Cramp & Sons Ship & Engine Building Company.
Mott, Abram C., Jr., Abram Cox Stove Company.
MacDonald, Walter T., Schaum & Uhlinger.
Ober, Thos. K., Jr., Sanitary Mfg. Company.
Outerbridge, A. E., Jr., Wm. Sellers & Co.
Plitt, H. M., Plitt & Co.
Ridgway, W. H., C. Ridgway & Sons Company.
Rominger, Geo. C., Girard Iron Works.
Sauter, W. F., Williamson Bros. Company.
Sheeler, J. Howard, Sheeler & Hemsher Company.
Shennan, W. J., Bethlehem Steel Company.
Sheppard, Howard L., Isaac A. Sheppard & Co.
Stacks, H. R., Geo. V. Cresson Company.
Stirling, Jas. S., Hilles & Jones Company.
Thompson, Josiah, J. Thompson & Co.
Wood, Walter, R. D. Wood & Co.

Ex Officio.

Devlin, Thomas, president, Thos. Devlin Mfg. Company.
Evans, Howard, secretary, J. W. Paxson Company.

The Puffer-Hubbard Company's Improvements.

The Puffer-Hubbard Mfg. Company, Minneapolis, Minn., has under construction a new manufacturing plant, having a main building 138 x 296 ft., with a power building 40 x 108 ft. A portion of the main building, 64 x 138 ft., two stories, will be used as a warehouse and office, while the remainder, which is one story, will be devoted to manufacturing purposes, and is divided into two rooms, 64 x 230 ft., one of which will be the woodworking department and the other the steel department. Power will be furnished by an engine directly connected to a generator, and all machines will be electrically driven. The plant will be provided with automatic sprinklers and electric elevators and will be modern in every detail. There will be hot and cold water for the employees, as well as an employees' dining room. Railroad facilities extend the entire length of the property, which is 550 ft., and the eastern portion of the building is served by an independent track with covered platform, 296 ft. long and 14 ft. wide. The company's principal product is wheelbarrows.

The Lackawanna Steel Company now has four furnaces in blast at South Buffalo, two having been blown out in September.

The Crucible Steel Company's Annual Report

The tenth annual report of the Crucible Steel Company of America presents the following comparative table of income, earnings and profits for its fiscal year ending August 31:

	1909-10.	1908-09.
Gross sales.....	\$18,782,729.24	\$12,121,651.09
Operating charges:		
Manufacturing cost.....	\$12,549,952.50	\$8,060,293.48
Repairs and maintenance.....	812,751.01	689,774.64
Administrative, selling and general expenses	1,049,034.44	949,315.72
Taxes	88,736.50	89,527.44
Commercial discounts and interest.....	149,423.40	128,996.45
	\$14,649,897.85	\$9,917,907.73
Provision for depreciation and contingencies	609,429.33	208,334.92
	\$15,259,327.18	\$10,126,242.65
Net manufacturing income..	\$3,523,402.06	\$1,995,408.44
Other income:		
Rentals received.....	\$10,784.45	\$12,797.73
Interest on investments.....	15,158.99	16,720.00
	\$25,943.44	\$29,517.73
	\$3,549,345.50	\$2,024,926.17
Interest:		
Purchase money mortgage....	\$1,245.02
Dividend scrip.....	12,218.25
	\$13,463.27	\$10,000.00
Net profit applicable to dividends	\$3,535,882.23	\$2,014,926.17
Cash dividend paid on preferred stock	1,802,191.87	549,821.25
Undivided earnings for the year	\$1,733,690.36	\$1,465,104.92
Add previous surplus.....	3,157,999.19	1,692,894.27
	\$4,891,689.55
Deduct scrip dividend of 10 per cent. on preferred stock issued June 30, 1910.....	2,443,650.00
Total undivided surplus as per balance sheet.....	\$2,448,039.55	\$3,157,999.19

The unfilled contracts and orders on hand August 31, 1910, were 115,936 tons, against 91,498 tons August 31, 1909. Total annual wages and salaries (approximately) were \$5,604,000, against \$4,018,000.

The balance sheet as of August 31, 1910, is as follows:

Assets.	
Capital assets:	
Real estate, plant and equipment, good-will, trade-marks, &c.....	\$45,825,663.40
Current assets:	
Inventories of raw materials, manufactured products and stores..	\$6,412,947.36
Taxes and insurance unexpired, &c.....	56,070.28
Investments	191,690.09
Bonds—Par value....	\$200,234.54
Stocks—Par value....	10,051.82
Bills receivable.....	64,325.67
Accounts receivable (less reserve).....	2,201,130.56
Cash in banks and on hand.....	791,298.55
	9,718,062.51
Total.....	\$55,543,725.91
Liabilities.	
Preferred stock.....	\$24,436,500.00
Common stock.....	24,578,400.00
	\$49,014,900.00
Dividend scrip due June 30, 1920.....	2,443,650
Current liabilities:	
Accounts payable.....	\$1,119,733.54
Interest and taxes accrued.....	39,341.03
	1,159,074.57
Reserve funds:	
Depreciation and renewal of plants (unexpended balance).....	\$272,386.75
Fire insurance.....	83,888.79
Contingent	122,286.25
	478,061.79
Surplus:	
Net profit for the year ending August 31, 1910.....	\$3,535,882.23
Deduct cash dividends on preferred stock:	
No. 24, 1½ per cent., paid September 30, 1909	\$366,547.50

No. 25, 1½ per cent., paid December 23, 1909	427,638.75
No. 26, 1½ per cent., paid March 31, 1910	427,638.75
No. 27, 2½ per cent., paid June 30, 1910	580,366.87
	1,802,191.87

Add surplus as of August 31, 1909.....	\$1,733,690.36
	3,157,999.19
	\$4,891,689.55
Deduct 10 per cent scrip dividend on preferred stock issued June 30, 1910.....	2,443,650.00*
Undivided surplus, August 31, 1910.....	2,448,039.55
Total.....	\$55,543,725.91

* At August 31, 1910, the unpaid dividends accumulated on the preferred stock aggregated 17½ per cent., of which 1½ per cent. was paid September 30, 1910.

From the accompanying statement of Chairman Herbert Du Puy and President C. C. Ramsey, the following extracts are taken:

"The ratio of operating charges to gross receipts was 77.99 per cent. in comparison with 81.82 per cent. in the previous year, being a reduction of 3.83 per cent. The ratio of net profits, applicable to dividends, to gross receipts was 18.82 per cent., compared with 16.61 per cent. in the previous year, being an increase of 2.21 per cent. The net profits earned were equivalent to 14.47 per cent. on the preferred stock.

"The expenditure for additional property during the year was \$302,266.95, being made up largely through the purchase of 11 acres of ground adjoining, and west of, the Atha Works at Harrison, N. J., which new purchase it is proposed to improve through additions to this plant.

"During the year the company has built its own warehouse in Providence, R. I., to meet the special needs of that city.

"On July 13, 1910, the company secured control of the Norwalk steel plant, located at Norwalk, Ohio. It was placed in operation in August and is now an active producer and will prove to be a profitable adjunct to the company's operating plants."

September Copper Production and Stocks

The report for September of the Copper Producers' Association shows a reduction in stocks of 20,087,531 lb. from September 1 to October 1. The report is as follows:

	Pounds.
Stock of marketable copper of all kinds on hand at all points in the United States, September 1.....	168,881,245
Production of marketable copper in the United States from all domestic and foreign sources during September	110,519,983
Deliveries of marketable copper during September:	
For domestic consumption.....	64,501,018
For export	75,106,496
Total.....	139,607,514
Stock of marketable copper of all kinds on hand at all points in the United States, October 1.....	148,793,714

The reduction of stocks is heavier than had been expected. It is due partly to a falling off in production and partly to an increase in deliveries. The curtailment by American copper producers, which was inaugurated August 1, has only shown its effect to a small extent in the figures of refinery production. The full effect may not be seen until another month has passed.

Wm. B. Phillips, director of the Bureau of Economic Geology, University of Texas, Austin, states that the total workable area of coal and lignite in Texas has been taken as 10,200 square miles, with an additional area of 58,300 square miles that may prove to be workable. The coal and lignite area in Texas, proved and probable, is almost as large as the entire State of Missouri.

Electric Steel Refining*

Considerations of Cost Which Determine Its Availability—Results with the Heroult Furnace

BY D. F. CAMPBELL, LONDON.

The use of electricity for the refining of steel has now taken its place amongst established metallurgical processes, and many papers have been written on the subject of electric furnaces, but the author proposes to discuss briefly the general aspects of the subject, and what he considers the probable and possible developments in the immediate future in England. The electric furnace is at present used in various works for the refining of steel from the Bessemer converter in the manufacture of rails and all classes of railroad material and castings, and more commonly in connection with the basic open-hearth process for the manufacture of various products of intermediate quality, castings and tool steel of all kinds. These are the purposes for which it has been most widely adopted, notably in America, Germany, and France, though it is also used for melting and refining charges of cold scrap of cheap quality for the manufacture of tool steel and small castings, and its high efficiency is now generally acknowledged. The refining of steel that had been previously melted was the first use to which the electric furnace was applied commercially; but now that single furnaces have been producing over 200 tons a day for more than sixteen months, it is obvious that the field for the process has widened, and already many furnaces are in construction or operation in this country.

A Widening Field for the Electric Furnace

The author is of opinion that the electric furnace is especially suitable, and will be widely adopted, for any class of work in which raw materials of a high degree of purity are now used. A wider application for rails and sections may occur when working in connection with the Talbot furnace, for the charge can be taken to the electric furnace as soon as the carbon is down and the necessity of removing the sulphur and getting a teeming heat is avoided, as this is done in the electric furnace both economically and completely. Thus the capacity of the Talbot furnace is substantially increased, and this covers the greater cost of electric refining.

Again, in the case of a basic open-hearth plant, using 60 per cent. of molten pig iron and 40 per cent. of scrap, a 40-ton furnace might have 15 tons removed to the electric furnace for refining, and a similar charge put in every two hours. Thus the capacity would be increased, the quality improved, and, in addition, a reduction in the cost of raw materials can also be made in some cases, as a low quality of pig iron can be used.

Similar conditions occur when working in conjunction with an open-hearth plant for making castings, and a thoroughly dead melt and extreme fluidity can be obtained, while the commonest raw materials can be used, and refined completely. This gives economy both in the amount of gits and runners, and also in the reduction of wasters. Even in the case of foundries engaged in ordinary open-hearth casting work, in which the margin of profit is now exceedingly small, the electric furnace is considered necessary for an improvement in quality, while in a small foundry making light and intricate castings from crucible steel, an economy of several pounds per ton may be expected to result from the adoption of the electric furnace,

judging from the reduction of the costs in works in Germany where crucible furnaces were replaced by this process.

There is little doubt that crucible steel, Swedish billets, and products of intermediate quality, such as are used for the Sheffield trade and by tube-makers of Staffordshire and South Wales, can be economically replaced by steel refined by electricity, and made in Middlesbrough, Cumberland, or the larger steelworks in the Sheffield and Rotherham districts.

The use of the electric furnace is not likely to become general for rail steel manufacture at the present time, except in cases where the conditions are exceptional. In certain cases, such as at South Chicago, it has been adopted for that purpose owing to the economic conditions, notably the scarcity of good Bessemer ores and the demand for better rails. The electric furnace in such cases may save Bessemer plants from the scrap heap, or, at any rate, prolong the life of present installations, and at the same time make it possible to produce rails of a quality better than the best open-hearth steel, thus avoiding heavy capital expenditure.

A Rapid Rate of Refining

In the electric furnace, almost any degree of refining can be economically effected, and the removal of sulphur, phosphorus and oxygen is especially easy. This is probably due to at least three causes:

1. The intense heating of the slag, which is the place at which refining takes place. Owing to this high temperature and the extreme fluidity of the slag the rate of the refining reaction is very great, because the velocity of reaction rises very quickly for high temperatures and not in direct proportion to the temperature.
2. The extremely basic slag that can be kept in a very fluid state, and the calcium carbide formed by the action of the arc on the calcareous slag, are especially advantageous for desulphurization.
3. The violent motion of the steel, which results from the convection currents produced in the bath, due to the two intensely hot areas caused by the arcs below the electrodes, increases the volume of steel exposed to the hot and fluid slag area, and hence the rate of refining.

Practice with Bessemer and Open Hearth Processes

The usual procedure for the use of the electric furnace in connection with the Bessemer converter is to charge the steel, holding back all slag in the ladle, after putting on the bottom of the furnace, lime and mill scale or iron ore. This produces an oxidizing or dephosphorizing slag, which may be carefully skimmed or poured off. On the bath of steel carbon is thrown to carburize to any required degree, and then a second highly basic and desulphurizing slag is added. The arc acting on the calcareous slag produces calcium carbide, which may combine with sulphur to form calcium sulphide. As neither gases nor air enter the furnace, and the conditions are almost completely reducing, no sulphates are formed, a dead melt is easily obtained, and when the slag is molten and the requisite heat obtained, the steel is teemed. In the open hearth or any oxidizing furnace these reactions cannot take place so completely and efficiently.

With steel from the basic open hearth furnace, the procedure is similar, but when the quantity of phosphorus to be removed is small, it is only necessary to use one refining slag for the elimination of sulphur and any small amount of phosphorus remaining. The usual practice is to put the carbon necessary for carburizing in the bottom of the furnace and then add the steel, and

* A paper read at the Buxton, England, meeting of the Iron and Steel Institute, September 26-30, 1910.

the basic slag materials. As soon as the teeming heat is obtained, the necessary ferroalloys are added and the steel will be completely refined.

Another point of interest is the rarity of blowholes in electric steel when properly made, and this leads to the question of the cause of these troubles. It is well known that any ingot of steel when placed in a vacuum evolves nitrogen, and this is about equally true whether it be made in the crucible, the Bessemer converter, or the electric furnace. Blowholes contain nitrogen, but this is probably not the cause. It is far more probable that they are due to the combination of oxides with the carbon in the process of cooling, and that the carbon monoxide so formed at a high temperature causes blowholes in the cooling steel, and owing to the diminution of volume of the carbon monoxide on cooling, a partial vacuum is formed, and nitrogen is sucked into the blowholes. In electric steel, oxides do not occur in any quantity, and consequently the prime cause of blowholes is reduced.

Again, the quality of electrically refined steel is better than a material of similar chemical composition made in any oxidizing furnace. This is probably due to the reducing conditions under which it is finished.

It must not be forgotten in discussing these special qualities of electrically refined steel, that some inferior material has been made by incompetent melters or in ineffective furnaces, and that the electric, just as much as any other furnace, requires trained men, and most careful designing by metallurgists who have made a special study and had practical experience in this subject.

Factors in the Cost Problem

The question of the cost of applying this process, which must be considered before all others, is more difficult to discuss generally, owing to the great variety of conditions. The following are the chief points, all of which must be carefully considered in each particular case:

1. The possibility of saving in cost of raw materials, since the best qualities of steel can be made from impure raw materials. For example, in the case of refining steel from open hearth furnaces in the South Staffordshire district, the use of local pig iron as compared with hematite iron would effect a saving of several shillings per ton owing to the high railroad rates.

2. Possibility of increasing the output of present furnaces by the addition of electric furnaces with improvement of product. For example, in the case of Talbot and other open hearth furnaces, where a large expense is incurred in the removal of sulphur and getting a teeming heat, the steel can be advantageously transferred to an electric furnace for desulphurization and the output materially increased. The Talbot or other tilting furnace is especially satisfactory owing to the facility with which charges can be transferred to the electric furnace whenever required.

3. Cost of power and possibility of using blast furnace or coke oven gas, exhaust steam, &c., will be the determining factor in regard to deciding whether, in the manufacture of steel, electric refining can be economically adopted. In the case of cheap power or valuable products, scrap may be economically melted and refined in the electric furnace at a current consumption of 700 to 800 kw.-hours per ton, or if the price of power be high, the steel may be merely desulphurized and deoxidized, after melting and dephosphorizing in a basic furnace, with a power consumption of 100 to 150 kw.-hours per ton.

4. The possible reduction of capital expenditure at certain works where the present products are not sufficiently good for modern specifications. This may involve the entire reorganization of the works, but it is often cheaper and more efficient to add an electric furnace to a Bessemer plant than to replace the latter by open hearth furnaces.

Desirable Features in Design

The author does not wish to compare the different types of electric furnace in this paper, but the figures given are taken chiefly from Heroult furnaces in America, England, Germany and France, as this type has been far more widely adopted, and is used in larger units than any other, and single furnaces are now refining 250 tons per day. This furnace is similar to a basic open hearth furnace, and seems to present more

simplicity and to embody more of the desirable features of electric furnace design than any other, which, in the author's opinion, are:

1. The best basic open hearth design should be followed as closely as possible. A bottom homogeneous and solid and banks free from embedded electrodes is important, and above all simplicity of design.

2. All electric mechanism, in the form of generators, transformers, &c., should be entirely separate from the furnace, should work under ordinary conditions of standard electrical practice, and should be of standard design, so as to avoid all unnecessary risks and complications.

3. A high power factor must be maintained, thus reducing the capital cost of machinery and increasing the general efficiency of the power house.

4. To avoid excessive cost of refractory materials, the roof should be protected from the direct radiation of the arcs by the electrodes themselves, and the intensely heated area of slag should be as large as possible, to increase the surface of refining action. The Heroult furnace has an advantage over the open hearth furnace in that the heat is applied to the center of the bath, so that the banks are not quite so hot as the middle of the furnace and the wear of refractories is consequently less.

5. The heat should be applied to the slag, as in the basic open hearth furnace, and the temperature of the slag should be maintained above that of the steel, which allows of extreme basicity and fluidity being obtained and gives an intensely active refining action. The conditions in the furnace should be oxidizing, neutral or reducing, at will.

Changes Due to the Electric Furnace

The adoption of electric refining will cause some readjustment in the steel trade. As soon as the Sheffield steel melter has become acquainted with the process and accustomed to the working of electric furnaces, electrically refined steel will largely replace ordinary crucible steel. This has already occurred in Germany and America, where electric furnaces are used to make all classes of special and high-speed steels, the usual practice being to refine metal from a basic open hearth furnace. Large crucible plants and small open hearth furnaces engaged in the manufacture of small and intricate castings, such as motor car parts, &c., may be replaced by electric furnaces, because the high degree of fluidity and dead melt obtained is especially advantageous.

In many cases manufacturers of axles, guns and tubes will abandon the use of Swedish raw materials and refine steel made from low grade ores, thus reducing the value of high grade ore deposits and the quantity imported; for, by the use of electricity, Cleveland stone will produce a steel equal to the best hematite ores. The capacity of many Talbot and basic open hearth plants will be increased and the quality of the product improved, while much of the power that is now going to waste will be utilized for steel refining.

From the electrical engineer's point of view, the electric furnace is an attractive load, as it is more or less in continuous operation. In the case of the Heroult furnace the power factor is 0.88 to 0.90, though much less with large induction furnaces. Single, two or three phase current of any frequency from 20 to 60 has been used without any difficulty, though it is preferable in the case of a two-phase system to transform to three-phase current, which can be done without additional difficulty or expense. The load factor will be most favorable, the usual practice when refining, for example, in a 15-ton furnace, being to use 2000 kw. for 20 minutes after charging, while the steel is being heated. The current is then reduced to about 1500 kw. for 45 to 75 minutes until the steel is ready for teeming. There is then an interval of 10 to 15 minutes during which the furnace is teemed, settled and charged, which allows the transformers or generators time to cool before the period of overload commences. Current fluctuations occur for a few minutes, while there is an evolution of gas from the steel which makes the bath boil up and touch the electrodes. This, however, is not sufficient to be objectionable, provided that the electrical machinery is properly designed for the purpose, and the extent of these variations is not

so great as in the case of many rolling mills, the fluctuations in voltage being only about 3 per cent. in the South Chicago works, where a 2000-kw. furnace has been working steadily since May, 1909.

Discussion

In the discussion of Mr. Campbell's paper E. H. Saniter said that while he believed in the future of the electric furnace he considered that in many cases it would not sufficiently improve the steel to pay for the extra cost. He doubted if the electric process would be continued at South Chicago for the manufacture of rails. In some special cases the electric furnace would give a saving in raw materials but he did not see any saving where hematite or Cleveland pig iron is used. He thought it time that a good deal more information was given as to the cost of electric refining. As to desulphurizing it could be done without an electric furnace though perhaps not so efficiently. He doubted if the calcium carbide formed in the Heroult furnace has anything to do with desulphurization.

L. Greiner referred to the use of more furnaces and larger units of the Heroult furnace than of any other. Statistics show that there are actually working or being installed 35 induction furnaces and 77 electrode furnaces, the Heroult heading the latter list with 29 furnaces. As to the amount of steel treated it should be remembered that the South Chicago furnaces with 15 tons capacity are fed with liquid steel from a Bessemer converter. At Ugine in France there is an installation of four electric furnaces of two tons capacity each and two of 15 tons capacity on the Girod system. The latter are fed with cold charges; if charged with liquid steel they could easily give 20 tons.

J. H. Heap remarked that the question whether better or cheaper steel could be made by the electric furnace could not be answered by a simple yes or no. The consumption of fuel is an important factor. Under some conditions it is less by one process than by another and vice versa.

F. W. Harbord said that it was plain that the electric furnace could easily compete with the crucible furnace, the only question being whether the quality of electric steel is equal to that of crucible steel. Broadly speaking for 90 per cent. of the purposes for which tool steel is required, an electric steel meets all the conditions. In various intermediate steels such as axles and tires the electric furnace would find a good field. While it is a dear melter it is an economic refiner at high temperatures. For common steels such as rail steel, the electric furnace is certainly not economical, but for high class steel it gives finishing conditions which cannot be obtained in any other way. The great essential is to finish with a non-oxidizing slag, and no other process permits of such control of the condition of the slag.

Mr. Campbell, in closing the discussion, said that he did not expect the electric furnace to be used to a large extent for rails, but in works making railroad material doubtless a great deal of axle and tire steel could be made to advantage in the electric furnace. Finishing in the electric furnace is better than in the Talbot furnace. It is quite true that the electric furnaces at South Chicago are experimental as to rail steel since the rails are now being tested on various railroads. He would not claim that for rail steel the electric furnace has great superiority over other furnaces. Perhaps too much emphasis has been laid on the removal of sulphur and phosphorus. The great point in the electric furnace is the removal of oxygen in addition to sulphur and phosphorus.

The Becker Steel Agency in the United States.—The Becker Steel Company of America has been incorporated under the laws of the State of New York

to handle, in the United States, the products of Stahlwerk Becker, A. G., Willich, Germany. The plant of Stahlwerk Becker is claimed to have the most modern equipment in the world for producing high grade steels of all descriptions, particularly alloy steels of difficult fusibility, all steels being electrically melted in Paul Girod furnaces. George B. Norcross is general manager of the Becker Steel Company of America. Offices and warehouses have already been established in New York and Detroit, and the company contemplates establishing further offices and warehouses in all of the principal industrial centers of the United States, so that shipments can be made promptly from the large and well assorted stocks which will be carried. Special attention will be given to all types of alloy steels used in the construction of automobiles, which can be furnished promptly in either bars or forgings.

The Steel Corporation's Unfilled Orders

The statement of unfilled orders on hand September 30, published by the United States Steel Corporation this week, shows a reduction of 379,022 tons last month. The total was 3,158,106 tons against 3,537,128 tons August 31. The reduction in August was 433,803 tons and in July 286,863 tons. The reduction for the third quarter of the year was thus 1,099,688 tons as against 1,144,720 tons in the second quarter and 524,517 tons in the first quarter. The unfilled orders on hand September 30 represented the smallest tonnage in any of the reports made by the Steel Corporation except the figures for September 30, 1904, which were 3,027,436 tons. The complete records of unfilled orders of the Steel Corporation, beginning with the third quarter of 1902, are as follows:

September 30, 1910.....3,158,106	September 30, 1906.....7,936,884
August 31, 1910.....3,537,128	June 30, 1906.....6,809,850
July 31, 1910.....3,970,931	March 31, 1906.....7,018,712
June 30, 1910.....4,257,794	December 31, 1905.....7,605,096
March 31, 1910.....5,402,514	September 30, 1905.....5,885,377
December 31, 1909.....5,927,031	June 30, 1905.....4,829,655
September 30, 1909.....4,796,833	March 31, 1905.....5,579,560
June 30, 1909.....4,057,939	December 31, 1904.....4,696,203
March 31, 1909.....3,542,595	September 30, 1904.....3,027,436
December 31, 1908.....3,603,527	June 30, 1904.....3,192,277
September 30, 1908.....3,421,977	March 31, 1904.....4,136,961
June 30, 1908.....3,313,876	December 31, 1903.....3,215,123
March 31, 1908.....3,765,343	September 30, 1903.....3,278,742
December 31, 1907.....4,624,552	June 30, 1903.....4,666,578
September 30, 1907.....6,425,008	March 31, 1903.....5,410,719
June 30, 1907.....7,603,878	December 31, 1902.....5,347,523
March 31, 1907.....8,043,858	September 30, 1902.....4,843,007
December 31, 1906.....8,489,718	

Lackawanna Steel Company's Earnings

The Lackawanna Steel Company and subsidiary companies report for the quarter ended September 30 as follows:

	1910.	Changes.
Income from operations.....	\$1,251,150	Dec. \$109,541
Income from investments, &c.....	189,000	Inc. 108,540
Total income.....	\$1,440,150	Dec. \$1,002
Interest on bonds and notes.....	437,500	Inc. 30,625
Balance.....	\$1,002,650	Dec. \$31,627
Sinking funds.....	101,656	Inc. 2,562
Depreciation and renewals.....	308,638	Dec. 39,946
Total deductions.....	\$410,294	Dec. \$37,383
Surplus.....	\$592,356	Inc. \$5,757
Unfilled orders (gross tons).....	261,931	Dec. 144,931
From January 1 to September 30:		
Income from operations.....	\$4,021,493	Inc. \$1,895,269
Income from investments, &c.....	807,000	Inc. 625,619
Total income.....	\$4,888,493	Inc. \$2,520,887
Interest on bonds and notes.....	1,292,083	Inc. 92,708
Balance.....	\$3,596,410	Inc. \$2,428,179
Sinking funds.....	293,270	Inc. 52,954
Depreciation and renewals.....	1,016,804	Inc. 184,860
Total deductions.....	\$1,310,074	Inc. \$237,814
Surplus.....	\$2,286,335	Inc. \$2,190,365
Unfilled orders (gross tons).....	261,931	Dec. 144,931

The American Iron and Steel Institute

Important Foreign Interests Represented at the New York Meeting—A British View of the Objects of the Institute

The arrival of about 30 prominent European manufacturers of iron and steel in New York this week to participate in the meeting of the American Iron and Steel Institute and in a tour of important steel producing centers is in pursuance of a plan first broached by the president, Elbert H. Gary, at the meeting of the Institute in New York last May. In outlining work

and their lines of manufacture will be of interest. Baron Dr. E. von Bodenhausen, a director of Fried Krupp Aktiengesellschaft, is at the head of the commercial department of Krupp's Steel Works, Essen, Germany. He is one of the younger men in that organization, succeeding Dr. A. Schmidt, for many years chief of the commercial department, on the latter's



BARON von BODENHAUSEN
SYDNEY JESSOP ROBINSON

SIR JOHN S. RANGLES
CARL STEVEN

E. SCHALTENBRAND
F. HARLINGHAUSEN

REPRESENTATIVES OF BRITISH AND GERMAN STEEL COMPANIES WHO ARE AMONG THE AMERICAN IRON AND STEEL INSTITUTE'S GUESTS

which the Institute might undertake Judge Gary had said that the relations of the iron and steel industry in the United States to the industry in other countries might properly be within the scope of the Institute. He suggested that matters pertaining to international trade in iron and steel might well be considered at a meeting in the autumn, which representative iron and steel manufacturers of Europe would be invited to attend. Judge Gary's idea was heartily approved by the directors of the Institute and their recommendation was adopted by the members. A committee of arrangements was appointed and under its direction the plans for the New York meeting has taken shape.

The Guests

In *The Iron Age* of October 6 the names of the Institute's guests were given and their business connections. Some further details concerning the visitors

death in the past year. Baron von Bodenhausen's department is that of the so-called "peace" products of the great Krupp works, as distinguished from the "war" products, for which these works have so long been famous.

John Scurrah Randles, long connected with iron and steel works and mining in the Cumberland district of England, was for some years chairman of the Moss Bay Hematite Iron & Steel Company, Ltd., of Workington. This and other companies, together with the Cumberland properties of Cammell, Laird & Co., were amalgamated in 1909 when Sir John Randles was made chairman of the board of directors of the Workington Iron & Steel Company, Ltd. This company has 23 blast furnaces and five rail mills, six iron mines and three quarries. Sir John was elected a member of the House of Commons in 1900 and is still a representative

of one of the Cumberland divisions. He was knighted by King Edward in 1905. He is a magistrate in his county and was for two years president of the British Iron Trade Association. His residences are at Stilecroft, Workington, and Surbiton, Surrey. The Workington Iron & Steel Company is also represented by Joseph Ellis, one of its directors.

E. Schaltenbrand, who has been for the past six years chairman of the board of management of the Stahlwerks Verband, the syndicate which includes practically all the important steel works in Germany, is 44 years old. He is a member of the council and the treasurer of the Verein Deutscher Eisenhuettenleute, the well known German technical society. Before assuming the management of the Stahlwerks Verband he was for nearly twelve years the head of the commercial department of the Gutehoffnungshuette, one of the most important of German steel companies. His connection with the iron industry extends over 27 years.

Sydney Jessop Robinson, M.I.M.E., is managing director of William Jessop & Sons, Ltd., Sheffield, England. He is a justice of the peace for Sheffield, a member of the council of the Sheffield Chamber of Commerce, director of the Lancashire, Derbyshire & East Coast Railway, and of J. J. Saville & Co., Ltd., Sheffield. He was master of the Cutlers' Company of Sheffield in 1905 and 1906. He has made upwards of 40 trips between England and the United States, being president of William Jessop & Sons, Inc., of New York, and of the Jessop Steel Company, Washington, Pa. Mr. Robinson is a member of the Iron and Steel Institute.

Col. Sir Charles Allen, V.D., J.P., who is a nephew of the late Sir Henry Bessemer, has been connected with steel manufacture almost since his boyhood. He received his public school education in England and his technical training in Germany. In the Franco-Prussian war he attached himself to an ambulance corps and was in several engagements, including the battle of Sedan. For 15 years he has been colonel commanding the Third West Riding Brigade, Royal Field Artillery, and was among the early volunteers for the war in South Africa. He is chairman of Sir Henry Bessemer & Co., Ltd.; director of the Ebbw Vale Steel, Iron & Coal Company, Ltd., and magistrate for the county of Derbyshire.

F. Harlinghausen is a director of the Phoenix Company and is manager of the wire department at Hamm, Westphalia, these works having been the property of the Westfaelische Union Company, Ltd., before the merger of the latter in the Phoenix Company. Director Harlinghausen has been connected with the Hamm works since 1873 and has been their manager since 1892.

Carl Steven, a director of Felton & Guillaume Lahmeyerwerke Aktiengesellschaft, at Muelheim on the Ruhr, has particular oversight over the export business of that company, which is an important factor in the wire trade, making a specialty of high grade electrical wires, rail bonds, &c. He became connected with Felton & Guillaume in 1872. This connection has continued ever since, with the exception of four years, when he was abroad familiarizing himself with the export trade. G. Zapf, also a director of the Felton & Guillaume Company, is another member of the party.

H. Eisner is a director of the Hahn'sche Werke Aktiengesellschaft, Berlin, Germany, with works at Grossenbaum, Westphalia, this company being an important factor in the German tube trade.

Bolckow, Vaughan & Co., Ltd., Middlesbrough, England, the important Cleveland district manufacturers of pig iron and of rails, shapes and other forms of finished steel, are represented by G. Scoby-Smith, managing director, who is one of the leading members of the British iron trade.

Alfred N. Moss crop is a director of Dorman, Long & Co., Ltd., Middlesboro, one of the leading steel manufacturing companies of the Cleveland district and well known also as structural engineers and bridge builders. Mr. Moss crop has been in this country for some time, temporarily residing at Rochester, N. Y.

M. Mannaberg is of the Frodingham Iron & Steel Company, Doncaster, England, which produces pig iron and various basic open hearth steel products, among which are Grey shapes and Friestedt sheet piling.

G. Muir Ritchie is a director of the Cargo Fleet Iron Company, Middlesbrough, England, which in recent years has increased its operations in an important way. It is a manufacturer of rails, shapes and bars, and employs Talbot furnaces in the manufacture of basic steel.

David Colville & Sons, Ltd., of Motherwell, near Glasgow, Scotland, is represented by David Colville, managing director. The firm is prominent as a manufacturer of steel for shipbuilding and general structural purposes.

Stewarts & Lloyds, Ltd., Glasgow, Scotland, are the largest manufacturers of tubes in Great Britain. Their manager, P. N. Cunningham, is a member of the party.

F. Hill and F. W. Manson are, respectively, managing director and director of the Middlesbrough firm of Richard Hill & Co., prominent manufacturers of wire.

John O'Connor is manager of John Brown & Co., Ltd., Sheffield, England, one of the most important manufacturers of steel in that district. The company also owns the Clydebank Engineering & Shipbuilding Works on the Clyde and has a half interest in the Coventry Ordnance Works of Cammell, Laird & Co., Ltd., besides an interest in Harland & Wolff, the Belfast shipbuilding firm. The Sheffield district is also represented by T. Scott-Smith, general manager of Samuel Fox & Co., whose Stocksbridge Works, near Sheffield, produce crucible, Bessemer and open hearth steel.

Harry Steel, Jr., is a director of Steel, Peach & Tozer, Ltd., of Rotherham, Yorkshire, England, which produces steel rails, structural shapes, bars, &c.

Lincoln Chandler of the Metropolitan Amalgamated Railway Carriage & Wagon Company, Ltd., Saltley, Birmingham, is also connected with important bridge building and steel construction firms in Great Britain.

William B. Peat is of the firm of W. B. Peat & Co., London, the leading corporation accounting firm in Great Britain. It acts as auditor for most of the steel companies and for a number of the railroad companies. Mr. Peat is secretary of the British Rail Makers' Association.

T. Frame Thomson, who is chairman of the Otis Steel Company, Ltd., has been in the United States for some time, having his headquarters at the Otis Steel Company's works at Cleveland, Ohio. He will join the English party in New York.

The John Cockerill Company, Seraing, near Liege, Belgium, the leading manufacturer of steel in Belgium, is represented by E. Tonneau. Another important Belgian steel interest, that of the Ougree-Marihaye Company, sends two of its directors, L. Spaak and J. Van Hoegaerden.

France's representatives are R. de Labriolle and Herman Harjes. The former is manager of the Comptoir Exportation des Produits Metallurgiques, which handles for export the products of the principal steel companies of France. It includes all the French rail mills except that of the Acieries de France. M. Harjes is of the banking firm of Morgan, Harjes & Co., Paris.

From Austria come Wilhelm Kestranek, manager, and Dr. Eugen Herz, secretary, of the Prager Eisen-Industrie Gesellschaft, which has works in Bohemia.



T. J. DRUMMOND
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W. J. FILBERT, SECRETARY
W. A. ROGERS
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EDWARD BAILEY, TREASURER
C. M. SCHWAB, VICE-PRESIDENT

OFFICERS, DIRECTORS AND COMMITTEE CHAIRMEN OF THE AMERICAN IRON AND STEEL INSTITUTE

while its chief offices are in Vienna. It is one of the leading steel companies of Austria-Hungary.

The Meeting

The general features of the New York meeting and the tour that is to follow it were given in our issue of October 6. The session for the discussion of papers will open at 10.30 Friday morning, October 14, in the Myrtle room of the Waldorf-Astoria. The address of President Gary, which will touch on the international aspects of the meeting, will be followed by papers by James A. Farrell on "Foreign Relations," by William B. Dickson on "Betterment of Labor Conditions," by Willis L. King on "Contract Obligations," and by Charles Kirchhoff on "The International Metallurgical Congress at Duesseldorf." At the annual banquet Friday evening the visiting delegations will be represented on the programme and the guests will include representatives of railroad and financial interests in New York.

Saturday is given up to an excursion by steamer around New York harbor, starting from the foot of West Forty-second street at 10.45 a.m. The special train for the excursion to Buffalo, Chicago, Pittsburgh and Washington will leave the Grand Central Station, New York, at 7.45 Sunday evening, October 16. The party will number about 75 members and guests. The Chicago programme will include a formal dinner at the Blackstone Hotel Tuesday evening, October 18, and at Pittsburgh two informal entertainments will be provided. Inspections of important steel plants and other industrial operations are being arranged for, as outlined heretofore. The train will reach New York Saturday evening, October 22.

The Iron and Steel Institute American Tours of 1890 and 1904

The visit to this country of representative manufacturers of iron and steel in Great Britain and in the leading iron producing countries of the Continent of Europe recalls two previous occasions on which similar visits were made. In September, 1890, 295 members of the Iron and Steel Institute and 142 members of the Verein Deutscher Eisenhuettenleute crossed the Atlantic to hold the annual autumnal meeting of the Institute in New York. This expedition was in many respects the most remarkable the Institute had ever made. The invitation was extended by the American Institute of Mining Engineers, and in the entertainment of the guests there was hearty co-operation of the iron and steel manufacturers of the United States. The trip was noteworthy for the length of the journey involved and the number of mines and works visited. Owing to the size of the visiting party two excursions were planned. One took in the Southern iron district, making a journey of 4300 miles; the other, which was known as the Northern expedition, covered 4000 miles, and in addition to visits to the Pittsburgh and Chicago districts made a tour of the iron ranges of Michigan and Wisconsin. The general reception committee was presided over by Hon. Abram S. Hewitt, and Andrew Carnegie, on behalf of the American iron trade, gave the address of welcome at the first meeting, which was held October 1 in Chickering Hall, New York. A monumental record of the tour and of the impressions of the visitors was prepared by Sir Lowthian Bell, taking up the greater part of a special volume published by the Iron and Steel Institute under the title "The Iron and Steel Institute in America in 1890."

The second visit of members of the Iron and Steel Institute to the United States was in late October and early November, 1904. At that time the party numbered about 200. Again the invitation was given by the American Institute of Mining Engineers, and there was again hearty co-operation of iron and steel manufacturers in the entertainment of the visitors. After the meeting of the Iron and Steel Institute in New York for the discussion of papers the party started on an

excursion to Philadelphia, Washington, Pittsburgh, Cleveland and Buffalo. At Pittsburgh about 90 members separated from the main party and took train for the St. Louis Exposition, this excursion including also a trip to Chicago, with visits to the South Chicago Works. Andrew Carnegie was president of the Institute at the time. The Reception Committee had John Fritz as honorary president and Charles Kirchhoff as chairman.

British Comment on the Work of the American Iron and Steel Institute

The following from the *Iron and Coal Trades Review*, London, of September 23, 1910, is a friendly view of the possibilities of the American Iron and Steel Institute in the cultivation of cordial relations among iron and steel manufacturers of the different countries:

"The technical side of iron and steel manufacture has been dealt with fairly fully in the United States, by such technical bodies as the American Institute of Mining Engineers and the American Society of Mechanical Engineers, but the commercial side has had no exponent. It is a matter of some surprise that as the premier iron and steel manufacturing country an iron and steel institute has not been founded there before. There already exists in America the American Iron and Steel Association, with offices in Philadelphia, whose main function is to collect and disseminate statistics relating to the iron trade in the United States, and in foreign countries. This work has been admirably directed by James M. Swank for a great many years, but it does not cover the field of the new organization. The functions of the American Iron and Steel Institute as we understand them are mainly commercial. They aim to promote cordial relations between manufacturers of iron and steel in the United States, and the forthcoming meeting in New York is of first-rate importance in that it also aims to bring together the commercial heads of iron and steel undertakings throughout the world. This in itself is quite a new departure.

"Just as there are many technical points connected with the details of iron and steel manufacture which can be discussed by technical men, so are there many points connected with the business organization of iron and steel works from which good and mutual benefit can arise from free discussion. Whereas the technical side of iron and steel manufacture has been advanced very greatly in recent years, the methods of doing business have undergone no alteration. It may be urged that no alteration is possible, but this is perhaps a too conservative view. For instance, one question that might be within the scope of the American Iron and Steel Institute to discuss is where does option leave off and a contract begin? It has sometimes been difficult to determine exactly where an option becomes crystallized into a contract, and how far that contract is binding unless cancelled by mutual consent. This is a question of first importance which has hitherto not been definitely defined in this country, and if some uniform procedure could be arranged, not only between different works in this country, but between different iron and steel making countries as well, a solidity could be given to business which is not at present possible. Postponements of deliveries such as those occasioned by the present shipbuilding strike can be met by special provisions. There are other similar problems which continually face the management of iron and steel works. In view of the fact that labor, rates and taxes and other items that make up the cost of iron and steel manufacture are going up, it is to be feared that times may come when few will find industry profitable. This will right itself in the long run, but in the meantime it will be a case of the survival of the strongest.

"The experience of steel makers in this country goes to show that by the formation of local associations a considerable amount of benefit has accrued to the

trade. In the United States it will be remembered that the conferences which led to the formation of the American Iron and Steel Institute were those instituted by Judge Gary in pursuance of his price maintenance policy which was adopted and held to by the American iron trade during the worst times following the panic of 1907. The American organization aims to bring together the captains of industry, who will discuss matters relating to the trade, with authority to act for their respective companies should occasion arise, and it may be that in bringing together international captains of industry, developments may take place in some such direction. This is thrown out more or less as a suggestion. It is not intended to convey that there is any such idea at present in the minds of those responsible for the organization of the American Iron and Steel Institute. At the same time, more can be done by the co-operation of all nations, than is possible through harmonious working in one country alone."

Organization of the American Iron and Steel Institute

OFFICERS.

President, Elbert H. Gary, chairman United States Steel Corporation.

First Vice-President, Powell Stackhouse, chairman Cambria Steel Company.

Second Vice-President, Willis L. King, vice-president Jones & Laughlin Steel Company.

Third Vice-President, Charles M. Schwab, president Bethlehem Steel Company.

Treasurer, Edward Bailey, president Central Iron & Steel Company.

Secretary, W. J. Filbert, comptroller United States Steel Corporation.

Assistant Secretary, Howard H. Cook.

DIRECTORS.

Term expiring 1911.—Wm. E. Corey, president United States Steel Corporation; E. C. Felton, president Pennsylvania Steel Company; Elbert H. Gary, Charles M. Schwab, Powell Stackhouse.

Term expiring 1912.—T. J. Drummond, president Lake Superior Corporation; W. J. Filbert; J. C. Maben, president Sloss-Sheffield Steel & Iron Company; Wm. A. Rogers, Rogers, Brown & Co.; J. F. Welborn, president Colorado Fuel & Iron Company.

Term expiring 1913.—Edward Bailey; E. A. S. Clarke, president Lackawanna Steel Company; Willis L. King; Samuel Mather, Pickands, Mather & Co.; John A. Topping, chairman Republic Iron & Steel Company.

CHAIRMEN OF COMMITTEES.

Committee on Membership.—E. H. Gary.

Committee on Improvement in Methods.—E. H. Gary.

Committee on Foreign Relations.—J. A. Farrell, president United States Steel Products Company.

Committee on New York Meeting.—E. A. S. Clarke.

Benjamin P. Forbes, 409 Superior Avenue, Cleveland, Ohio, is conducting a campaign for improving the lighting of factories by the dry cleaning of windows with his Factory Glasbrite. He urges manufacturers to clean their windows and let in the sunshine, thus protecting the health of the employees, increasing their efficiency and cutting down light bills. He is making a trip through New England establishing additional agencies. He will send by mail to any manufacturer a free sample sufficient to clean 500 sq. ft. of glass.

So far this year twenty ship loads of Panama scrap have arrived in New York and have been sold by the Government. The average cargo is 1100 tons. The average price obtained is \$11.25 a ton. The receipts from this source have since January 1, therefore, netted the Government \$247,000, less duties and freight.

Industrial Accidents in Massachusetts

The Massachusetts Commission on Compensation for Industrial Accidents, appointed by Governor Draper last June, and consisting of James A. Lowell, chairman; Amos T. Saunders, secretary; Magnus W. Alexander, Henry Howard, and Joseph A. Parks, with Carroll W. Doten as chief investigator, organized early in July for the purpose of carrying out the instructions embodied in a resolve passed by the General Court June 6, which were as follows:

The public good requires a change in the present system of determining the compensation of employees for injuries sustained in industrial accidents, and the commonwealth ought to provide different and more equitable relief. . . . The commission shall investigate the effect of the present laws relating to the liability of employers for injuries received by employees in the course of their employment; shall investigate other laws and systems in operation in other States and countries; shall correspond or confer with committees and commissions in other states, considering the same subject; and shall draft an act for the compensation of employees for industrial accidents. . . . The commission shall report in print the draft of an act and a compilation of the data and statistics and such other information as the commission may be possessed of as a result of its investigation and study on or before the second Wednesday in January, 1911.

Pursuant to these instructions, the commission has been holding regular weekly meetings during the summer and has made a careful study of the systems in use in other States and countries, and has started several line of statistical investigation to obtain data in regard to the number and character of accidents in the commonwealth, not possessed by any regular State bureau or commission.

The commission is now holding public hearings in various parts of the State to enable employers, employees and others interested in this matter to present their views and to furnish such information as they may possess for the use of the commission. The first of these hearings was held in the State House, Boston, September 29.

Other hearings were arranged as follows: Lowell, October 7; Springfield, October 14; Pittsfield, October 15; Fall River, October 27, and New Bedford, October 28. It is probable that hearings will be held in other cities in the commonwealth where there is a sufficient demand for them. It is also likely that subsequent hearings will be held in Boston and elsewhere as soon as the commission has prepared the draft of a tentative bill, in order to enable interested parties to make definite suggestions and criticisms.

The commission has realized from the start that the most serious objection to the passage of a compensation act in Massachusetts would be the possible handicap which it might impose upon the industries of the State in competition with those of other States not having such advanced legislation. While the experience of other countries does not seem to warrant the fears entertained in regard to this matter, it has seemed desirable to secure as high a degree of uniformity as possible in the legislation likely to be enacted in the several States now having commissions at work upon this subject. The commission has already attended two conferences with commissions of other States and is engaged at present in making arrangements for another conference, at which it is hoped the seven States having commissions will all be represented. This plan seems to meet with the approval of the several commissions, and such a meeting is likely to be held early in November. If Massachusetts, New York, New Jersey, Ohio, Illinois, Wisconsin and Minnesota can agree upon substantially the same form of legislation, there is no doubt that the fear of interstate competition will be largely removed and that other States will rapidly fall in line.

The new No. 2 furnace of the Wickwire Steel Company, Buffalo, N. Y., was blown in October 1.

The Portable Schwartz Melting Furnace

During the past year the Hawley Down Draft Furnace Company, 736-738 West Monroe street, Chicago, Ill., has developed a portable type of its Schwartz melting furnace. Fig. 1 is an end view of the furnace, showing the tilting gears, and Fig. 2 is a front view, showing the furnace partly tilted and its supports.

The equipment consists of a standard furnace, which is supported by heavy channel irons or other means and is carried from place to place in the foundry.

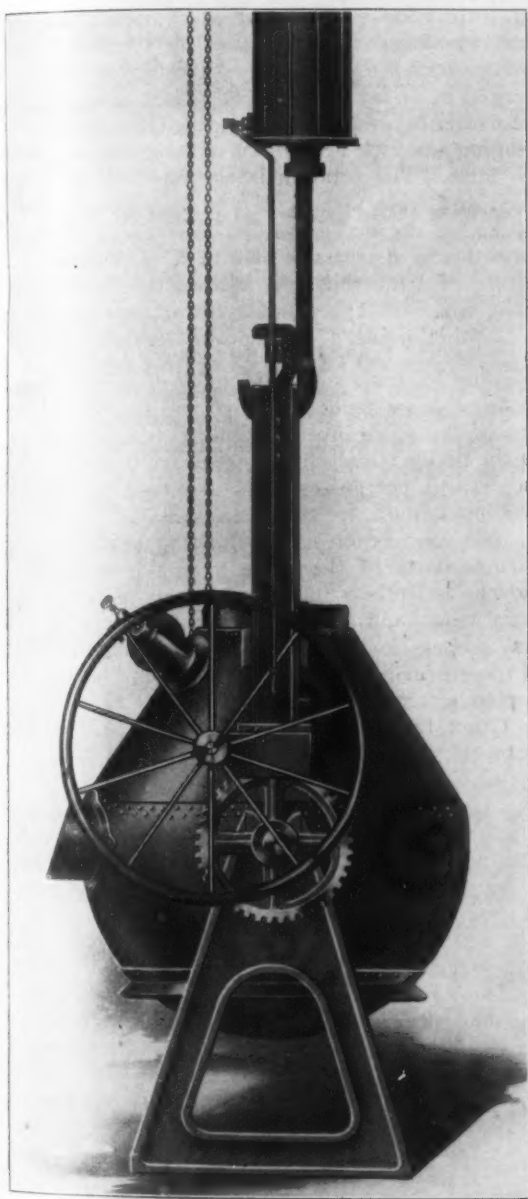


Fig. 1.—An End View of the Schwartz Portable Melting Furnace, Manufactured by the Hawley Down Draft Furnace Company, Chicago, Ill.

dry by a trolley on the ceiling or wall. The pneumatic hoist, controlled by the lever at the right of Fig. 2, raises and lowers the furnace, and the metal is poured directly into the molds. A specially devised set of gears, the end view of which is shown in Fig. 1 and the front view in Fig. 2, tilt the furnace for pouring. It is claimed for this furnace that the actual pouring is done with much greater facility than is possible with a hand ladle and as the metal is not transferred into ladles it is not necessary for it to be as hot as formerly. For example, under old conditions, if the temperature of pouring was 2200 degrees, the temperature in the furnace had to be 2400 degrees before the metal was poured. This saving of 200 degrees means that the metal need not be brought to any higher temperature

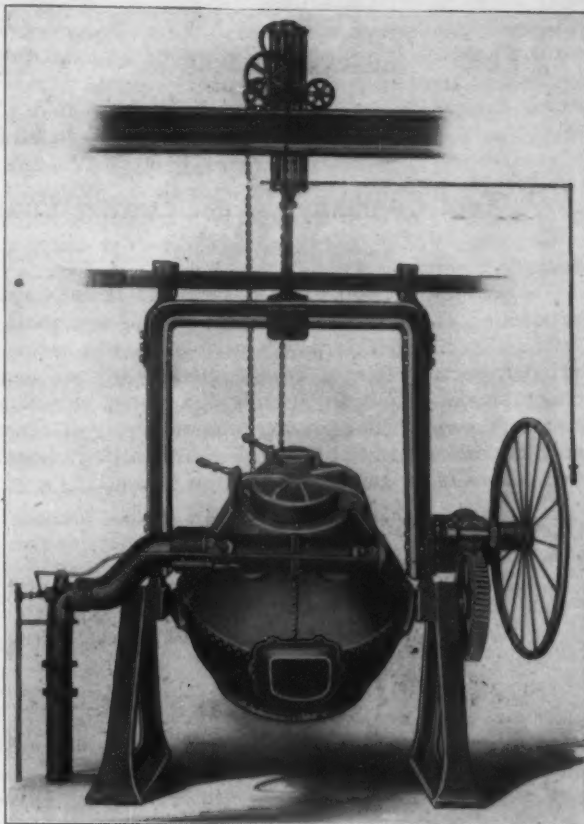


Fig. 2.—Front View of the Furnace, Showing Its Supports.

than that of pouring, which effects a saving in fuel and time and eliminates unnecessary oxidation loss.

One of the recent orders received by the Hawley Company for these portable furnaces was for the plant of the Trefileries et Laminiers du Havre, which is one of the largest foundries of its kind in Europe. In this particular installation an air hoist is attached to each furnace, and this has reduced the time of making castings fully 30 per cent. While the metal is being melted the furnace rests upon two supports of the type usually supplied with the ordinary stationary furnace, but if desired the furnace may be used as a stationary one and the hoist employed for some other purpose in the foundry.

A New Foundry in Ellwood City, Pa.—G. A. Burrows and C. E. Anderson, formerly with the Evans City Foundry Company, Evans City, Pa., and Robert Irwin have formed a partnership under the name of the G. A. Burrows Foundry Company, at Ellwood City, Pa., and have secured a lease on a brick building 50 x 75 ft., located on sidings to the Baltimore & Ohio and Pittsburgh & Lake Erie railroads. A 5-ton J. S. McCormick Company Cupola, a 15 hp. Reid gas engine, a tumbling barrel, a crane, a core oven, etc., are now being installed. The foundry will be in operation about October 25. Robert Irwin is president, G. A. Burrows manager and C. E. Anderson foreman. The foundry will make gray iron machinery castings from one pound to one ton in weight and for the present will sell its product from the office in Ellwood city, Pa., while later on agencies will be established. The erection of a machine shop is a possibility.

A decrease of 22,500 in the number of idle freight cars on the railroads of the United States is reported in the fortnightly bulletin of the American Railway Association, issued as of September 28. The idle list September 14 included 47,076 cars, and September 28 only 24,528 cars. This is the smallest idle list reported at any time since the middle of last March, when all but 17,342 of the freight cars on American and Canadian railways were in demand.

The Blanchard Vertical Spindle Surface Grinder

A Tool Combining Great Driving Power with Ability to Produce Accurate Work

What may be said to be a specialist in the rapid production of true flat surfaces of the highest quality is the Blanchard high power vertical spindle surface grinder, recently placed on the market by the Blanchard Machine Company, Cambridge, Mass., and illustrated herewith. The grinder was originally designed and built to meet a need which arose in its builder's own shops for a grinder of greater power than could

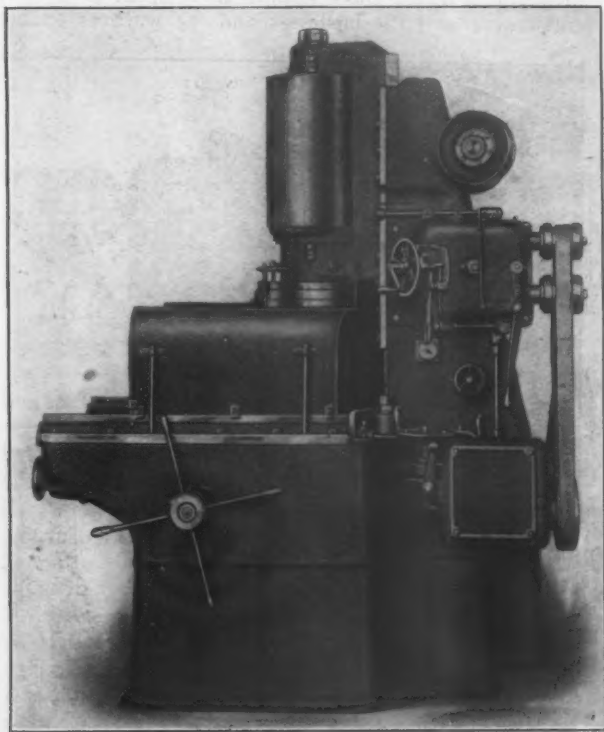


Fig. 1.—General View of the Vertical Spindle Surface Grinder Built by the Blanchard Machine Company, Cambridge, Mass.

be bought in the market, and its performance there was so satisfactory that it was decided to place it regularly on the market. As will be noticed from the engravings, the machine is massive and powerful and it possesses not only the driving power necessary for taking heavy cut but the rigidity and weight to insure accurate work. Two of the special features tending to make rapid production easy for the operator are its centralized control and the power raising and lowering device. Fig. 1 is a general view of the grinder, Fig. 2 is a section of the head and wheel, Fig. 3 is a plan view of the column, head and table and Fig. 4 is a sectional elevation through one of the three supports provided for the column. Figs. 5 and 6 are exterior and interior views, respectively, of the table speed gear box; Fig. 7 is a rear view of the grinder, showing the pump supplying water to the work being ground, while Fig. 8 is another general view with the water guards removed.

The Machine in Detail

In designing the grinder the builder recognized the fact that attempts to combine a traversing and a rotary table generally result in making the latter an unsatisfactory attachment to the former, and also that the majority of the pieces can be handled very efficiently on a large diameter rotary table. It has therefore been

designed with a rotary table which is an integral part of the machine. A 24-in. rotary magnetic chuck supported on a sliding table carries the work. This table can be quickly swung clear of the wheel for placing and removing work and as easily returned. The rotating chuck runs on a large diameter ball bearing submerged in an oil bath and is gibbed down securely at the center by a ball thrust bearing, thus enabling overhanging work to be ground without danger of tilting the table. The rotation is accomplished by a splined shaft and wide face bevel and spur gears running in oil baths, the reduction between the shaft and the chuck being in the ratio of 9 to 1. The electrical connections for the chuck are inclosed in a case under the table, where it is impossible for water to reach them. From this point a waterproof steel armored cable passes through the frame of the machine to a switch on the operator's side of the column.

The grinding wheel used is of either the ring or cylinder type and is 16 in. in diameter. It is cemented

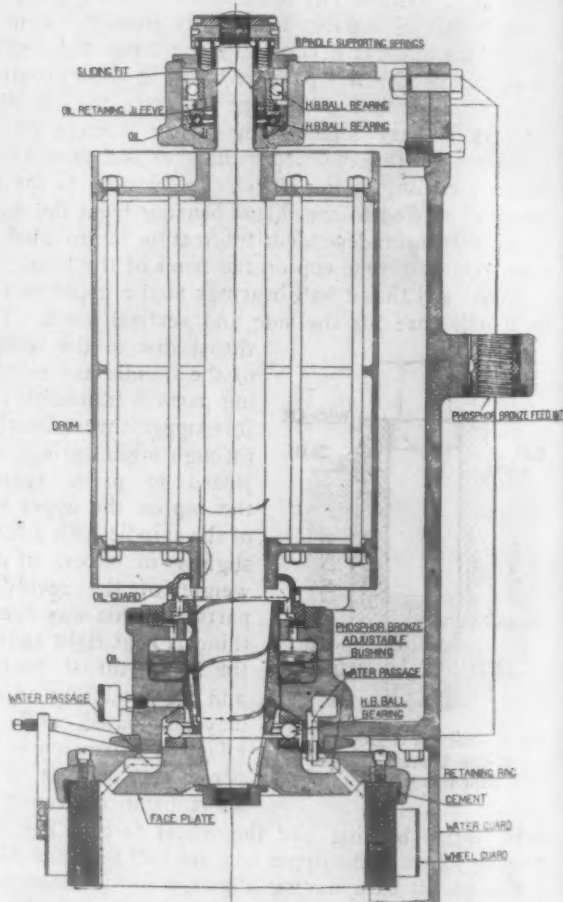


Fig. 2.—Sectional Elevation of the Grinding Head and Wheel.

into a special retaining ring and attached to the face plate by six screws. During the life of the wheel the wheel and the ring are a unit and as six rings are sent with each machine the same number of wheels can be kept mounted and ready for use. When it becomes necessary to change a wheel, the six screws are removed, the wheel changed and the wheels replaced, all of which is only the work of a few minutes.

The spindle is a large diameter steel forging reinforced by the 14-in. cast iron drum for the driving belt.

The face plate is keyed to the lower end on a taper and secured by nut threaded on the spindle. A large size Hess-Bright ball thrust bearing is mounted directly on the face plate and takes the upward thrust due to the pressure of the wheel against the work. This form of thrust bearing is claimed to eliminate all the trouble occurring from the variation of the oil film thickness which occurs where collar or washer thrust bearings are used and is a serious difficulty in obtaining accurate

grooved to distribute the oil. Conveniently located oilers are provided and are thoroughly protected from water and grit by a continuous iron guard behind the wheel, which is bolted to the under side of the head.

The column is a heavy box section, with internal stiffening ribs, and the walls are thickened in the lower sections. This construction, which is said to be difficult to surpass for rigidity and freedom from deflection, combined with the very long and massive head, secures a rigid support for the grinding wheel spindle. A three-point support is provided on the head for the column, and Fig. 4 shows a sectional elevation through one of these supports. Vertical adjustment at these three points is secured by bushings threaded in the column and bearing on the bed. Large diameter holding down bolts pass through the bushings and are threaded into the bed. The heads of these bolts bear on large washers resting on finished spots on the column and not on the bushings. These washers have a hexagonal portion and serve to turn the bushings by projections which enter slots in their upper end. This construction of the bushings and the washers enables

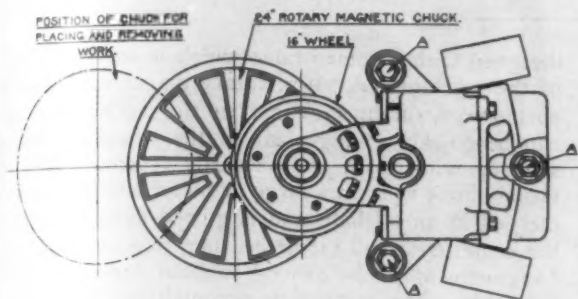


Fig. 3.—Plan View of the Column, Head and Table.

work. Directly above the thrust bearing is the main spindle bearing. This is of the large diameter taper type and compensation for wear is secured by turning a thread collar which is self-locking in any position. Surrounding the phosphor bronze bushing of this bearing is a pocket having a capacity of nearly a quart of oil which is rapidly circulated through the bearing while the spindle is in motion. In addition to securing good lubrication this oil carries heat away from the spindle and bushing since it is cooled by the water supplied to wheel, the cored water passage being in close proximity to the oil pocket. A gauge indicates the oil level and permits easy replenishing. Any leakage of oil passes into the thrust bearing chamber and thence into the water coming to the wheel. In addition to the lubrication supplied to the thrust bearing from the main spindle bearing, independent lubrication is provided by a compression grease cup on the front of the head.

Radial and thrust ball bearings at the upper end of the spindle care for the side and vertical loads. The

thrust due to the weight of the spindle and revolving parts is transmitted to this upper thrust bearing through eight springs adjusted to press against the cap on the upper end of the spindle with a force slightly in excess of the weight of the revolving parts. In this way everything is kept tight against the main thrust bearing and all possibility of end play eliminated, while the effect of expansion is imperceptible because of the short distance between the

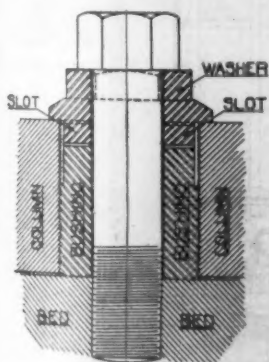


Fig. 4.—Section Through One of the Three Column Supports A, Fig. 3.

lower thrust bearing and the wheel face. The only running joints in the upper box are ball bearings which run in an oil bath having a gauge for indicating the level. The lower and upper bearings are both dust tight and oil retaining and require but little attention.

The housing for the lower spindle bearing is integral with the main casting of the sliding head, while the upper box fits a bored seat in this casting and is bolted firmly to it. These fastenings are easily accessible and when removed the face plate and the upper bearing, with the drum and spindle, may be taken out. A square slide of massive design secures the head to the column, and the sliding surfaces, which are continuous for the entire length of the head, are

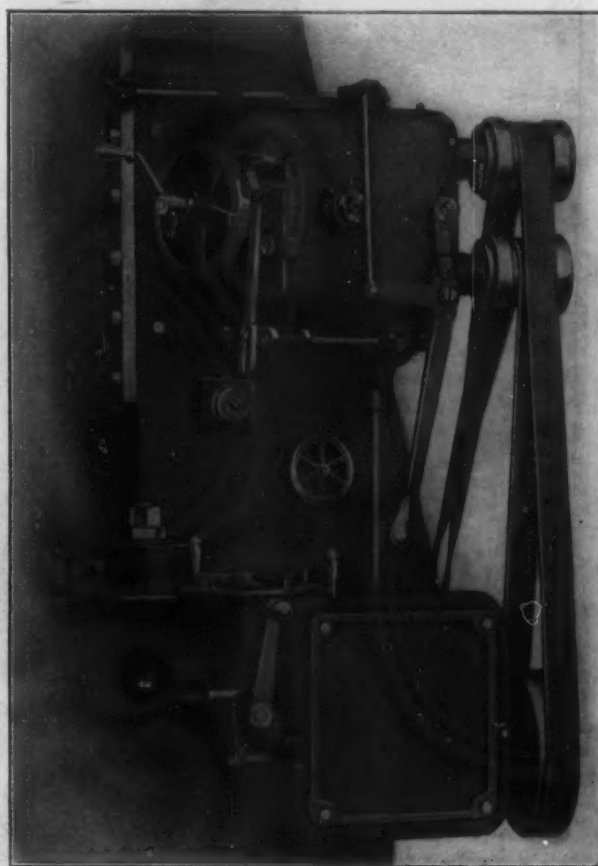


Fig. 5.—Exterior View of the Table Speed Gear Box.

adjustments to be readily made at any time, since all three points are accessible without removing any part of the machine. Although adjustments can be easily made, this feature is not secured at the expense of rigid connections, as all backlash in the bushing threads is taken up by the clamping effect of the central holding down bolts. For convenience in setting the column forward when it is desired to concave saws or similar work graduations are provided on the rear washer.

In feeding the wheel to the work the sliding head is let down by the action of a heavy lead screw located in the recess between the head and the column and running in a phosphor bronze nut fixed in the head. A ball bearing of ample proportions set in a recess screw at its lower end, and steel bevel gears with planed teeth connect with the feed box shaft. The automatic feed consists of a ratchet device feeding once per revolution of the table, and a shield is pro-

vided which may be set to stop the feed at any desired point.

The High Power Drive

The massive spindle construction enables the driving pulley to be placed directly on the spindle and a 5-in. double belt is led from the countershaft to an idler on the front of the column, thence to the drum on the grinding wheel spindle and returns over a similar idler on the rear of the column to the countershaft. The idler pulleys are of the Blanchard self-oiling type with a reservoir having a capacity for about a pint of oil which is rapidly circulated through the bearings while the pulleys are running. These bearings are of ample proportions, are dust proof and are claimed not to throw oil at any speed. The countershaft has ample ring oiling bearings. At a spindle speed of 1000 rev. per min., the peripheral velocity of the wheel is 4190 ft. per min. and the speed of the belt 3670 ft. A belt of the size used is capable of transmitting over 25 hp. at this speed without excessive tension, but if more power is required for grinding large work the belt can be tightened without any danger of the bearing becoming overheated. Ample power is a feature, the

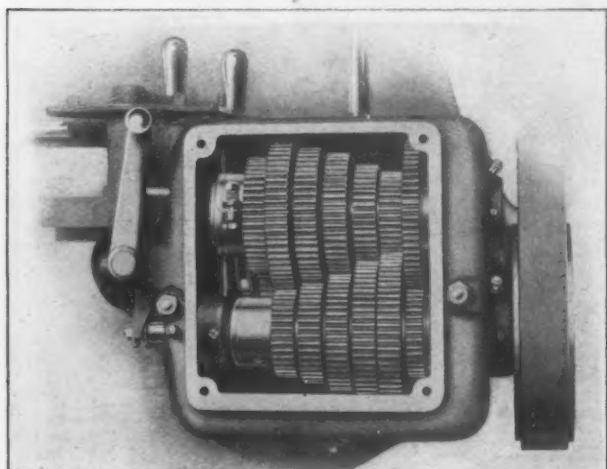


Fig. 6.—Interior View of the Table Speed Gear Box.

importance of which is sometimes overlooked in a machine of this type. Economy in the use of the abrasive requires that the wheel be operated at its highest speed and if it slows under the cut and is still fed against the work the face of the wheel will be crumbled and worn away rapidly. Reducing the rate of feed will cut down the wear on the wheel but at the same time the production is curtailed.

The water circulating pump is driven by a 2-in. double belt from the countershaft and another 2-in. belt is led from a step on the pump pulley over the raising and lowering clutch pulleys to that for the table speed gear box. This drive is very simple as two belts from the countershaft and one small belt on the machine are all that are used. Shifting belts on the cone pulleys are not required as all the table speeds are obtained through gears and the grinding wheel spindle has but one speed.

One of the features helping to make a large output possible is the power mechanism for the elevating and lowering the head. This consists of two friction clutch pulleys, running in opposite directions, which connect with the feed shaft. The pulleys are of the patent self oiling type of the builder and are combined with cone clutches which require no adjustment and are said not to stick or jam. A single lever conveniently located for the operator controls these clutches and enables him to bring the head rapidly to any desired position while overtravel in either direction is prevented by a simple device which returns the operating lever to the neutral position positively when either limit of travel is reached by the head.

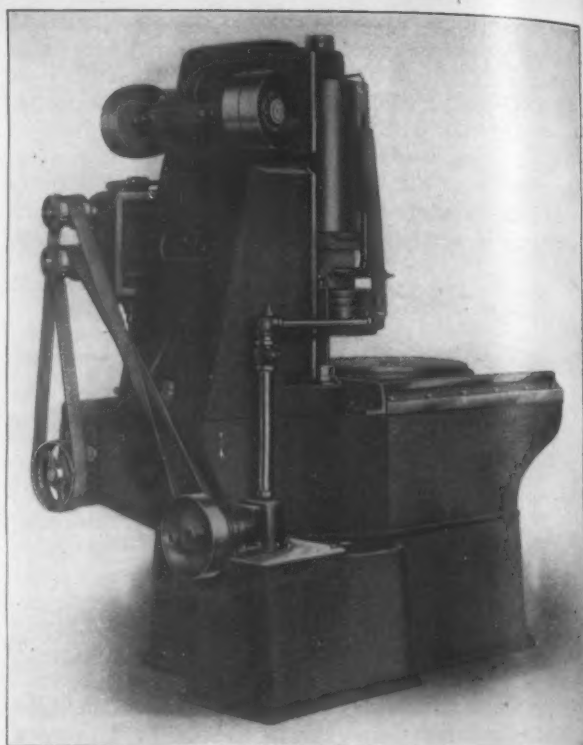


Fig. 7.—Rear View of the Grinder, Showing Pump and Water Supply Pipe.

A constant speed pulley at the right of the machine drives the splined shaft operating the table through a gear box the exterior and interior of which are shown in Figs. 5 and 6, respectively. Eight speeds are available, any one of which can be secured while the grinder is running and an improved type sliding key of ample size connects any one of four gears to the second shaft of the gear box while a similar key in the first shaft has two positions for driving directly or through the back gears. A simple design of friction band which is easily accessible for adjustment relieves any shock due to the sudden engagement of the key and permits a plain jaw clutch to be employed for starting and stopping the table. The levers controlling the rotation of the table and changing its speed are conveniently grouped at the left of the gear box. All the gears are accurately cut, have wide faces and run in oil.

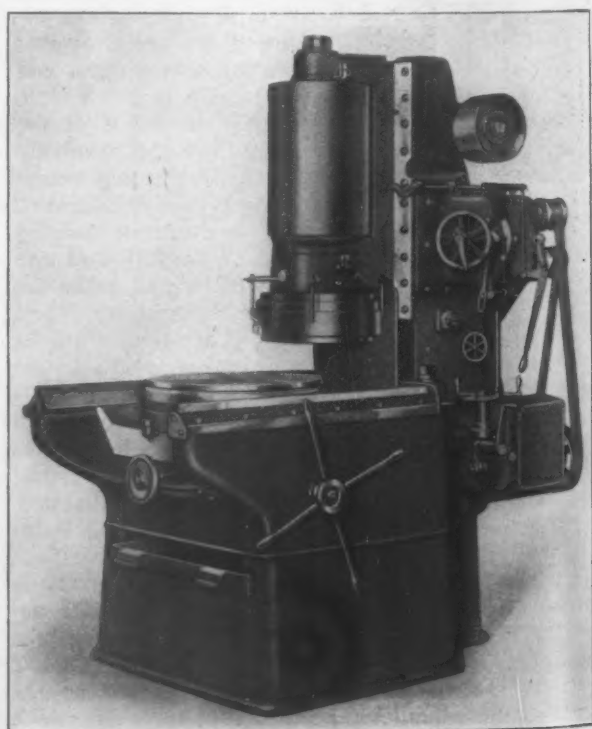


Fig. 8.—View of Machine with Water Guards Removed.

Water Supply and Lubrication

When heavy cuts are being taken it is necessary to have an ample supply of water if the work is to be kept cool. For this purpose a submerged large diameter centrifugal pump, shown in Fig. 7, is provided, which supplies water through a pipe and hose to a cored passage behind the lower spindle bearing in the head. From here it passes down through short tubes into an annular recess in the face plate and then outward and downward to the inner face of the wheel, where it issues with considerable force and is driven across the ground surface in a rapidly moving sheet, thus effectually cooling the work. With the exception of the vertical stiffening ribs the bed is open down to the floor, the lower section being the water tank. A valve with a special seat to prevent damage from grit regulates the supply of water to the grinding wheel and is controlled by a conveniently placed hand wheel. Suitable guards prevent any escape of flying water or spray.

Oil bath lubrication is provided for all the important

this type. If it is desired to keep more than six grinding wheels mounted at a time extra retaining rings can be furnished at a slight cost.

A Large Open Hearth Steel Casting

A very large steel casting which is of interest especially on account of its length and the comparative lightness of its section is illustrated herewith. This casting was recently furnished by the Federal Steel Foundry Company, Chester, Pa., to the William Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa., contractor for the construction of the battleship Wyoming. This vessel is one of the largest recently contracted for by the Navy Department, its displacement being 26,000 tons and the horsepower to be developed by its engines 28,000. The casting is intended for the stem of the vessel and is over 51 ft. in length and in some cases only $1\frac{1}{4}$ in. thick. Its weight is 23,550 lb., and in spite of its bulk the total variation of



The Casting for the Stem of the Battleship Wyoming, Furnished by the Federal Steel Foundry Company, Chester, Pa.

bearings and all the continuously running gears except those of the pump. Gauges indicating the level of oil in the reservoirs show when attention is necessary.

The principal specifications and dimensions of the grinder are given in the subjoined table:

Diameter of grinding wheel, inches.....	16
Height of wheel, inches.....	5
Wearing height of wheel, inches.....	3 $\frac{3}{4}$
Maximum thickness of wheel rim, inches.....	1 $\frac{1}{2}$
Minimum thickness of wheel rim, inches.....	1
Diameter of rotary magnetic chuck, inches.....	24
Swing inside of regular guards, inches.....	30
Maximum height of work under wheel, inches.....	12
Speed of grinding wheel, revolutions per minute.....	1,000
Number of chuck speeds.....	8
Slowest chuck speed, revolutions per minute.....	3.5
Fastest chuck speed, revolutions per minute.....	30
Diameter of drum pulley on spindle, inches.....	14
Width of driving belt, inches.....	5
Speed of driving belt, feet per minute.....	3,670
Minimum diameter of spindle at lower bearing, inches.....	3
Maximum diameter of spindle at lower bearing, inches.....	3 $\frac{3}{4}$
Length of lower spindle bearing, inches.....	6 $\frac{1}{2}$
Diameter of upper end of spindle, inches.....	3
Weight of spindle and revolving parts, pounds.....	325
Diameter of countershaft pulleys, inches.....	14
Width of countershaft pulleys, inches.....	10
Speed of countershaft, revolutions per minute.....	525
Capacity of water tank, gallons.....	64
Diameter water supply pipe, inches.....	1 $\frac{1}{4}$
Weight of machine, pounds.....	6,800

The equipment of the machine includes a countershaft, with tight and loose pulleys, and all the necessary appliances regularly furnished with a machine of

the casting, which was made in one piece from the pattern was less than $\frac{1}{4}$ in.

In the physical tests conducted by the Government with specimens taken from the casting, the results showed that the steel had an elastic limit of 44,000 lb., a tensile strength of 86,000 lb., an elongation of 20 per cent. and a reduction in area of 25.2 per cent. In the bending test a bar $1 \times \frac{1}{2}$ in. in section was bent cold through an arc of 140 degrees without fracture.

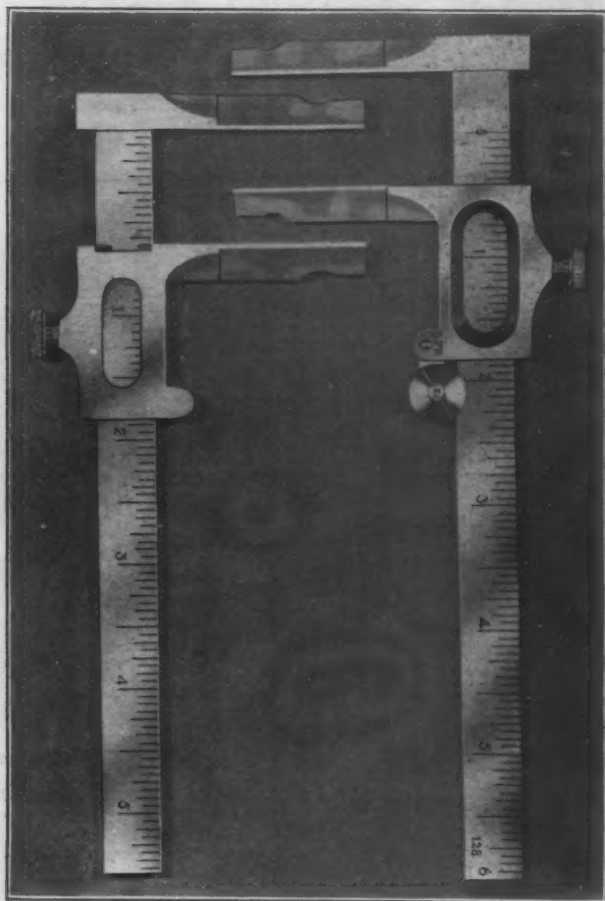
Correction.—In the illustrated description of the Manville four-slide wire forming machine which appeared on page 796 of *The Iron Age*, October 6, 1910, the maker's name was, by a typographical error, given in the caption of Fig. 1 as the Manville Machine Company. It should have been the Manville Brothers Company.

The Pressed Steel Car Company recently completed some of the largest steel ore cars in the world, if not the largest, for the Lake Champlain & Moriah Railroad, owned chiefly by the Port Henry Iron Ore Company and Witherbee, Sherman & Co., and located in the Port Henry iron ore region of New York. The cars are 20 ft. $6\frac{1}{4}$ in. long, inside measurement, and 7 ft. 6 in. wide. Each has a carrying capacity of 60 net tons, or about 10 tons more than the ordinary steel ore car.

New Columbia Calipers

Two new models of Columbia calipers recently added to the line by E. G. Smith, Columbia, Pa., are illustrated herewith. In a general way these new models follow the design of the other sliding or graduated beam calipers of this manufacturer and possess among other advantages long jaws giving large capacity and an increased thickness of the jaws at the measuring surface. The special features about the new models are briefly, in the caliper at the left of the engraving the face is cut where the reading is done which is an advantage when reading from the edge of an incline. When doing this work, it is rather difficult to tell just how near the line the caliper is. This is overcome by cutting a part of the reading surface away. In the other model, the movable jaw has a new adjusting device consisting of a friction wheel with its inner grooved beveled surface bearing against the lower side of the scale where there are no graduations. This makes the instrument very convenient to handle as it can be operated by the same hand that holds the caliper.

The blades of the calipers are from 4 to 14 in. long and are graduated in inches to sixty-fourths and also in the metric system and a vernier attachment enables very accurate measurements to be secured. The shape of the jaws is such that a maximum of strength is se-



Two New Forms of Caliper, Manufactured by E. G. Smith, Columbia, Pa.

cured with the minimum amount of metal, thus giving the instruments a neat appearance. The sliding head has a very even movement and a spring inside it prevents it from slipping of itself when set. In addition to these new models the line includes a number of others of different designs, those with hand and screw operated verniers and some having double jaws so as to be available for both inside and outside work.

The blast furnace of the Youngstown Steel Company, Youngstown, Ohio, was blown out September 30.

An Automatic Coal Railroad

An Interesting Installation of the Automatic Transportation Company's System

In *The Iron Age*, January 6, 1910, announcement was made of a number of automatic transporting devices which had been developed by the Automatic Transportation Company, 6 Lewis Block, Buffalo, N. Y. One of the devices mentioned was an automatic



Fig. 1.—Loading Cars on the Coal Railroad, Installed by the Automatic Transportation Company, Buffalo, N. Y.

carrier for bulky material, such as ore, coal, gravel and lumber, and an installation recently completed by this company in the mining district of Pennsylvania is illustrated herewith. Fig. 1 shows the cars being loaded at the mouth of a coal mine, Fig. 2 the elevated type of construction, used to give sufficient head room for wagons to pass under the railroads and Fig. 3 the cars at the lower end of the line discharging their load into railroad cars.

The line in question was installed at Blossburg, Pa., and connects the coal mines of Jenkins Brothers and Nowak Coal Company with the tracks of the New York Central lines. This road is about 1 mile long and the difference in level between the two ends is 553 ft., approximately. It takes the place of the former method of teaming the coal down the mountain road. Starting from the Jenkins coal tippie at the upper end of the line, the track is level for about 140 ft. Then it descends on a 7.45 per cent. grade 1130 ft. long to the Nowak Coal Company's tippie, when the track is again level for 100 ft. Leaving this tippie on a 7.88 per cent. grade, the tracks descend to the base of the hill. Here the grade decreases to about $2\frac{1}{2}$ per cent., and after rounding the curve shown in Fig. 2 the line ascends on a 2 per cent. grade to the power house and tippie at the railroad track.

The line consists of a series of iron posts resting on concrete foundations and capped with malleable iron Ys supporting insulated heavy steel rails 30 in. apart. The electric carriers or motor cars travel on these rails and take the current required for their propulsion directly from the rails instead of from a third rail or overhead trolley wire, as has formerly been

the practice. The point of contact where the current is taken is a V-shaped groove on the under side of the rail, which makes it possible to operate the line regardless of the weather conditions, as snow and sleet on the rails cannot interfere with the electrical contact. The elevation of the railroad varies from a few feet, as shown in Fig. 1, at several points in passing down the mountain, to 12 ft., where it makes the curve, shown in Fig. 2, and at the top of the tipples at the railroad siding in Fig. 3 the line is 31 ft. from

road tipples, automatically dumping it there and returning to the mouth of the mine, is less than 15 min.

A regular quarterly meeting of the managers of sales of the Illinois Steel Company, Carnegie Steel Company and Tennessee, Coal, Iron & Railroad Company was held in Chicago, October 4 and 5. These meetings have usually been held in Pittsburgh, but on this occasion the managers of sales and department managers of these companies met in Chicago, in recog-



Fig. 2.—Elevated Construction at Foot of Mountain to Clear Road.



Fig. 3.—Delivering Coal to the Railroad at the Tipple at the End of the Line; Elevation of Track, 31 Ft.

the ground. Although the grades are heavy they are practically uniform, as the height of the upright poles varies with the contour of the surface of the mountain.

The coal is transported in trains consisting of two motor cars which have a capacity of 1 ton each and four trailers that each convey a load of $1\frac{1}{2}$ tons. These trains are controlled either by an operator, who rides on the motor car, or are operated automatically. The time for a round trip from the loading of the cars at the mouth of the mine to carry the load to the rail-

road tipples, automatically dumping it there and returning to the mouth of the mine, is less than 15 min.

The Casey Aluminum Foundry Company, Chicago, has been incorporated with \$20,000 capital stock by Edward F. Casey, Jacob Sandecritz and Charles Weinfeld. The company's plant is located at 3806 South Halsted street.

The Syracuse Gas Producer

Details of a New Model

During the past decade there has been a very marked increase in the use of producer gas for power and numerous types of apparatus for producing gas from coal of both kinds, peat, lignite and other wastes have been developed. The special advantages of this type of power are high economy, safety, the solving of the smoke nuisance problem, the elimination of chimney expense and less labor and space for operating. In an effort to improve upon the existing models, the Syracuse Industrial Gas Company, Vernon, N. Y., has developed the Syracuse producer which is illustrated herewith. Fig. 1 shows the complete plant with the exception of a small exhaustor and a gas receiver located near the engine, Fig. 2 is a sectional elevation of the double type baffle scrubber, while Fig. 3 gives details of the water sealed and water cooled purge valve installed in connection with the producer.

Starting at the top of the producer the first point is the charging hopper, which in practically all producers is a double valve arrangement. In the Syracuse pro-

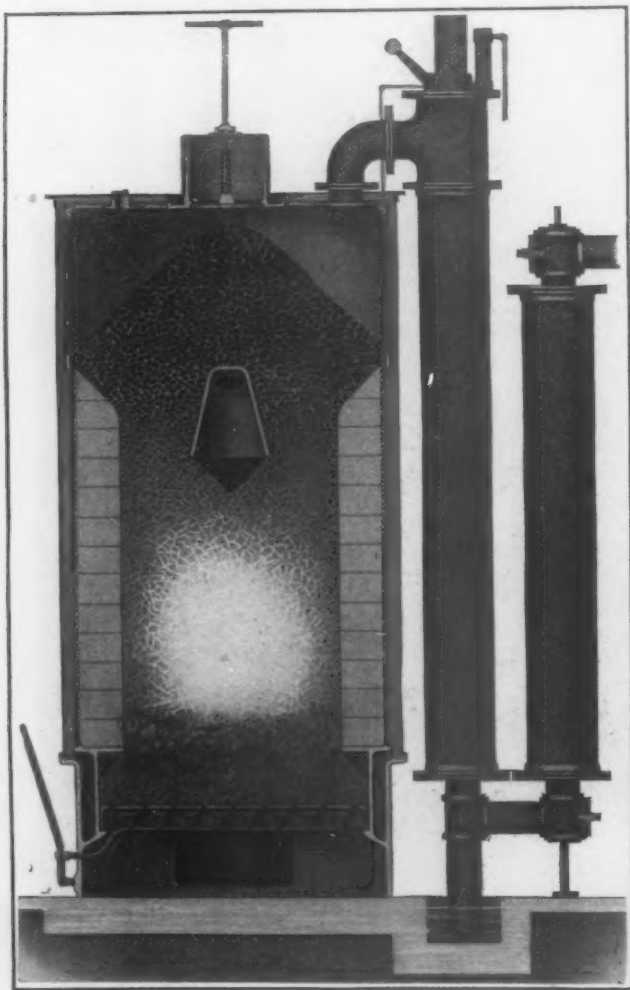


Fig. 1.—A New Type of Gas Producer, Built by the Syracuse Industrial Gas Company, Vernon, N. Y.

ducer the lower valve is a metal to metal slide, while the upper one is a sheet metal cover closed against the entrance of air by a water seal. In charging the producer the operator need not kneel or bend over, and before the cover comes into the position where it can be removed the valve must be shut tight. The handle operating the slide valve is fastened to and removed with the cover, which makes it impossible for both to be opened at the same time. The water for the vaporizer first enters the water seal, thus keeping the valve cool and at the same time doing away with any chance

of its becoming dry. The sides and top of the producer are inclosed by a double casing, the outer layer of which is easily removed. The entering air supply in all producers should be heated before it enters the

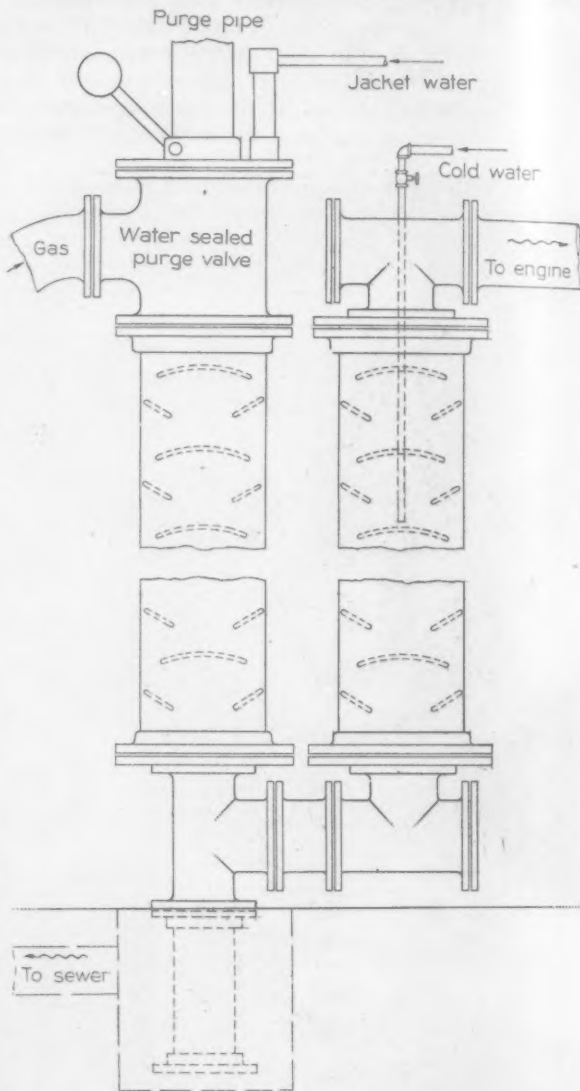


Fig. 2.—Sectional Elevation of the Baffle Scrubber Used.

fire to at least 158 degrees F. in order to carry enough steam to make good gas. The double shells are efficient for this purpose, as they not only keep the producer room cool, but the heat which ordinarily radiates from a producer of the single shell type is taken up by the incoming air and carried back into the fire. The heat in the gas as it leaves the top of the producer serves to generate the steam supplied to the fire. The gas is thus partially cooled before it passes to the scrubber, and in the latter is completely cooled and cleaned with less water than would otherwise be required.

The ash pit and cleaning doors are entirely of cast iron, which prevents the rust and corrosion which occurs if the shell extends down to form the wall of the ash pit and comes in contact with the moist ashes. The grate is of the shaking type operated from the outside by the lever shown at the left of Fig. 1, and the bars are selected to suit the proposed fuel in each particular case. In all producers there is a tendency, it is stated, for the air to creep up close to the brickwork rather than pass through the center of the fuel, and this is increased where the ashes are shaken or ground off at the edges only, and the fuel near the wall is brought down faster and is not so closely packed as that in the center. The grate used in the Syracuse producer is claimed to secure even descent of the fuel over the whole area and keep the middle of the fire as clean as the edge. The upper part of the cast iron base is a water compartment used principally for starting, and is

said to have solved one of the hardest problems in producer operation—namely, the difficulty of starting the producer in the morning because of an insufficient supply of steam. The regulator used supplies water to the vaporizer in proportion to the load on the engine, and there are no moving parts to get out of order or adjustment and all passages may be quickly inspected or cleaned when necessary.

The baffle scrubber shown in Fig. 2 is made double, so that in the first part the water from the jacket may be reused for cleaning the gas. Only a small quantity of cold water is needed in the second stage since a large portion of the heat in the gas and most of the dirt has been removed by the hot engine jacket water in the first stage. It is claimed for this arrangement of scrubbers that in most cases one-half of the customary amount of water used for cleaning is saved.

Upon leaving the producer and before entering the

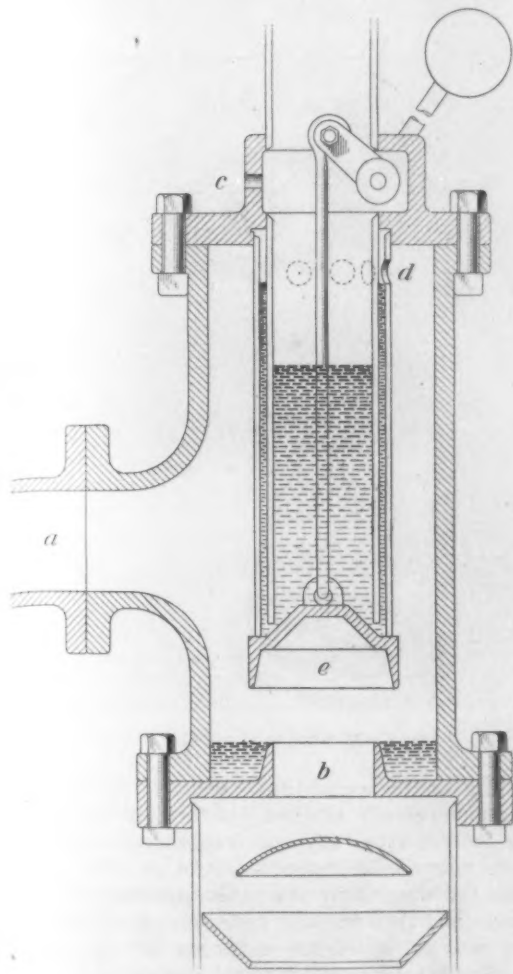


Fig. 3.—Detail of the Water Sealed Purge Valve.

scrubber the gas passes through the water cooled purge valve, the construction of which is shown in Fig. 3. The Underwriters' Rules require that when the plant is not in operation the connection between the generator and the scrubber must be closed, and that between the producer and the vent pipe opened so that the products of combustion can be carried into the open air, and both operations must be accomplished by a mechanical arrangement capable of preventing one happening without the other. It is claimed for the water cooled water sealed valve used in this producer that it will not stick or leak even after long service on hot and dirty gas. The gas enters at the opening *a*, and while the producer is in operation passes down through the opening *b* while water enters the pipe *c*, filling the space above the valve and flowing out through the opening *d*. This makes the seal, which is kept cool by the fresh water supplied to the pipe *c*. When the producer is shut down for the night the valve *e* is dropped

over the opening *b*, sealing it and leaving the purge pipe open to the atmosphere. This type of construction is said to possess advantages over some of the valves on the market at the present time where the seal is formed by bringing a cup, the lower edges of which are concave, over the end of the pipe so that it fits over and forms a seal at the opening *b*.

One of the characteristic features of this producer is said to be the method of starting. A small exhauster is connected with the gas pipe near the engine, and while the fire is being brought up to the gas making state the conditions throughout the apparatus are the same as when the engine is running. In this way full load can be thrown upon the engine immediately after starting, while if a blower is used for this purpose it is claimed that the fire will be thin and localized at the start, and the gas will soon give out when the load is placed on the engine. Another advantage of this arrangement is that all the leakage in connection with a suction gas producer plant occurs in starting when the fire is being blown up to a gas making condition, while with the starting arrangements used in the Syracuse gas producer no leakage is said to occur.

The cost of producing power with one of these producers supplying gas to a gas engine is 0.218 cent per brake horsepower per hour, or 51 cents per month of 234 hours using anthracite buckwheat coal at \$3.50 per ton. For a gas engine using natural gas at 25 cents per 1000 cu. ft., the figures are 0.375 and 80 cents, respectively, and proportionately higher with various other types of prime movers and fuel until the gasoline engine is reached where the cost per brake horsepower per hour is 1.63 cents and per month \$3.81, figured on a consumption of $\frac{1}{8}$ gal. of gasoline per brake horsepower per hour and the fuel costing 13 cents per gallon. Electric power is even more expensive, the figures being 2.25 cents and \$5.26, when the current is supplied at 3 cents per kilowatt hour.

Lake Ore Shipments to October 1

The statement below gives the shipments of Lake Superior ores in gross tons from Upper Lake ports in September, 1910, with corresponding figures for September, 1909, and a comparison of the shipments in the two years up to October 1. It will be seen that the increase over last year was 5,061,331 tons for the season, while the shipments in September this year were 777,153 tons less than in September, 1909:

	September, 1910.	September, 1909.	To Oct. 1, 1910.	To Oct. 1, 1909.
Escanaba	705,801	948,951	3,868,072	4,002,706
Marquette	439,442	565,949	2,689,219	1,979,517
Ashland	557,858	721,236	3,436,820	2,422,004
Superior	1,256,665	1,057,175	6,484,352	4,743,498
Duluth	2,041,908	2,133,800	11,865,552	9,847,177
Two Harbors.....	1,272,158	1,623,874	6,756,840	6,644,541
Totals.....	6,273,832	7,050,985	35,100,804	29,639,533

The Dunbar Brothers Company, Bristol, Conn., is completing a new brick and concrete hardening shop, 30 x 50 ft., and is starting work on a power plant which will be pushed to completion as rapidly as possible. These additions, with a three-story building, 32 x 80 ft., just completed, will double the company's manufacturing capacity. Its products are all kinds of small springs made from sheet steel and steel and brass wire, such as clock, valve, snap, organ, sash, blind, screen, flue, governor and door springs.

The Buffalo Steam Pump Company, Buffalo, N. Y., has reopened its St. Louis office. It will be in charge of H. H. Downes, 911 Third National Bank Building, St. Louis. Mr. Downes was transferred from the Buffalo office to St. Louis and has had a wide experience in the company's lines.

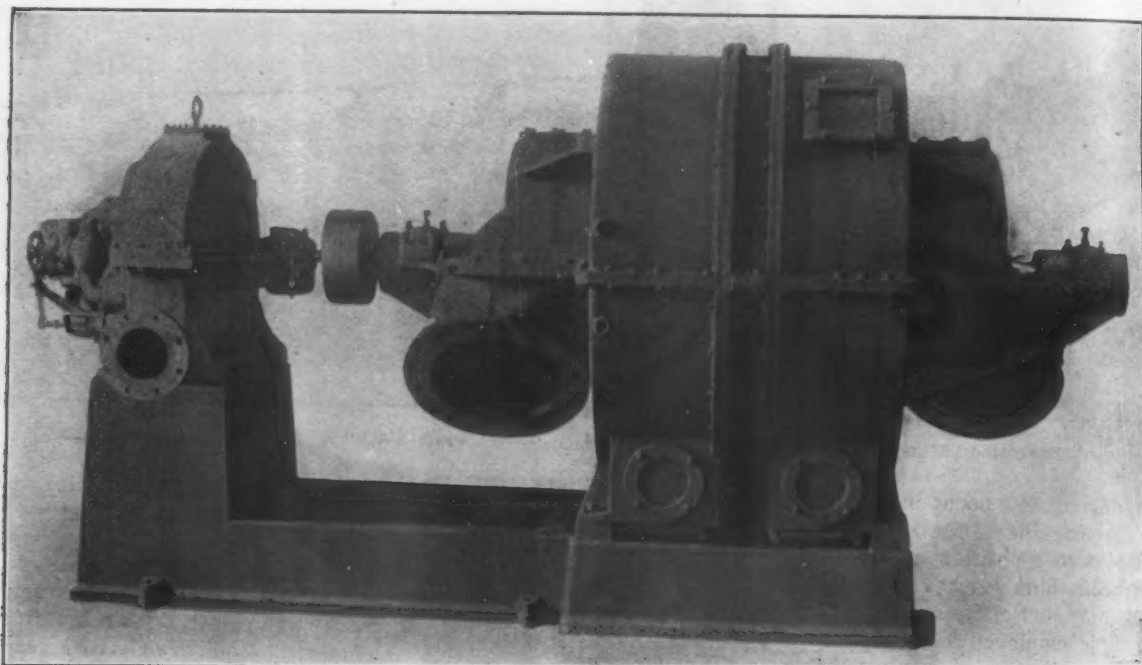
The Buffalo Tar Extractor

Details of a Centrifugal Purifier for Producer Gas

Probably the greatest difficulty encountered in operating gas engines with soft coal producer gas is the improper cleaning of the fuel. The raw gas coming from the producer contains a number of impurities, the most detrimental of which is tar, since if there is any tar vapor present in the gas it will condense on any metallic surface, the condensation being greatest wherever there is a sudden change of direction or in velocity. One of the points where the latter is true is the valves of a gas engine, and a continued deposit of tar on these parts may cause bad regulation and eventually prevent governor action entirely. While the gas engine operated with a soft coal producer is said to be superior to the steam operated plant using engines or turbines, the impurities present in the gas

gal type and comprises an outer cast iron shell, which is divided vertically into two separate stages, each provided with a monel metal rotor. This is the most nearly acidproof construction metal known, with the exception of lead, and is scarcely affected by the action of the sulphuric acid in the gas. All the other interior parts of the scrubber are of cast iron or monel metal and the shell is provided with numerous hand holes for their inspection. The shell is divided horizontally, so that the entire rotor and the shaft, which is mounted on self-aligning spherical ring oiling bearings attached to the shell of the extractor, may be removed without disturbing the bearings or the alignment of the casing. Power for driving the extractor at a speed of 1800 rev. per min. is furnished by a direct connected 60-hp. Terry steam turbine.

Water is thoroughly distributed to all parts of the scrubbers by patented monel metal nozzles at a pressure of about 15 lb. per square inch. These nozzles are of the atomizing type and of simple construction,



The Centrifugal Tar Extractor for Producer Gas, Built by the Buffalo Forge Company, Buffalo, N. Y.

have tended to retard the general adoption of the gas engine for power production. Any improvements therefore in the method or apparatus for cleaning producer gas are of general interest to power consumers, as it tends to place the producer operated gas engine in the same class as the other prime movers.

A portion of the power equipment of the Penn-American Plate Glass Company, Alexandria, Ind., consists of four engines direct connected to a generator, the aggregate horsepower being 1800 and subject to an overload of 10 per cent. These engines are supplied with gas from four 500-hp. soft coal producers of the usual type, and an interesting feature of the installation is that no gas holder is required. The producers are supplied with forced draft by steam jets, which supply sufficient pressure to overcome the resistance of the fuel bed and deliver the raw gas into the main under a pressure of $1\frac{1}{2}$ to $2\frac{1}{2}$ in. of water. Recently considerable difficulty has been experienced in operating the plant, partly due to the fact that the coal had an unusually high volatile content and also to scrubber trouble. These scrubbers consisted of a cylindrical stationary shell, within which was a rotating cylinder provided with numerous exterior blades or paddles, and an ample supply of water was introduced between the two drums.

In March, 1910, these scrubbers were abandoned and a Buffalo turbine tar extractor, manufactured by the Buffalo Forge Company, 490 Broadway, Buffalo, N. Y., was installed. This extractor is of the centrifugal

operating on the centrifugal principle. This type of nozzle is especially adapted for this service, as its interior is free from any obstruction tending to collect foreign material in the water. As an additional precaution the water first passes through two Buffalo pot strainers and then through cored chambers in the shell to the nozzles, which are all accessible from the outside. The beneficial effect of the second stage is shown in the economy of the water consumption, about 85 gal. per minute being used, and the marked increase in the efficiency of the cleaning, the difference of the color of the water of the two stages being very marked.

During the five months that the extractor has been in use it is said that not the slightest trace of tar or lampblack has been found in the gas main leading from it, although the four engines have operated continuously 24 hours per day and six days a week. Cleaning the engine at the end of the week was found unnecessary, and the absence of tar in the gas enables the governors to regulate the speed of the engine perfectly. Tests upon the cleaned gas showed only a trace of foreign material, the amount being 0.00031 grains per cubic foot. While part of it was tar and part finely divided lampblack, the amount was so small that it had no effect whatever on the engines. The construction of the rotor is such that there is no collection of tar on any part of it, and it remains as perfectly balanced as the day it was installed. The scrubber is thoroughly cleaned with steam once a week, which requires about half an hour and necessi-

tates no manual work whatever. This is all that has been found necessary to keep the apparatus in good condition.

The Pratt & Whitney 144-In. Measuring Machine

The latest type of measuring machine of the Pratt & Whitney Company, Hartford, Conn., which has just been built in a very unusual size for a customer is illustrated herewith. This machine measures 12 ft. or any



A New Model Measuring Machine, Capacity 144 In., Made by the Pratt & Whitney Company, Hartford, Conn.

part thereof to 0.00005 in. An important improvement in the machine is the raising of the standard bar at the rear to a position nearly level with the surface of the bed. This reduces to the lowest degree any error that may arise from reading the microscope. The principle employed has not been changed.

The delicacy of contact between the measuring faces is obtained by the use of auxiliary jaws holding a small cylindrical drop plug by the pressure of a light helical spring. This spring also operates the sliding spindle, to which one of the auxiliary jaws is attached. The tension of the spring is so adjusted that the instant the calipering surfaces are brought in to perfect contact, either directly or through the work, the plug which is held in a horizontal position by friction will swing toward a vertical position, any excess pressure causing it to drop out. An adjusting device for the index line provides for any slight variation of the position of the calipering faces at zero.

The West Side Foundry Company of Troy, N. Y., has made a substantial addition to its core building, which will increase fully one-third its capacity for making dry sand cores. An addition of 14 ft. to the molding shop has been completed, and the company has otherwise added considerably to its capacity, which is now about 40 tons per day. It is now operating a nickel-plating department and is in a position to do nickel-plating along with its regular casting work.

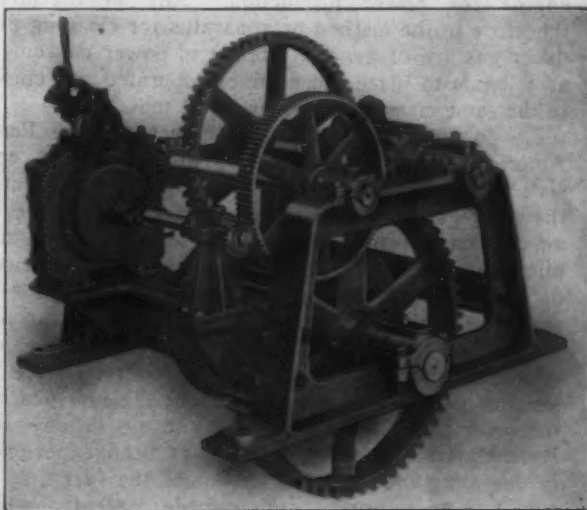
The Universal Portland Cement Company, Chicago, is making rapid progress in the construction of its No. 6 plant, at Buffington, Ind. Its completion in 1911 will give the company an output of 10,000,000 bbls. of cement per year. During the month of August the company made 687,500 bbls., which surpassed all previous records for one month's production.

The Lane Derrick Turning Gear

The improved type of boom derrick turning gear or slewing engine illustrated herewith has been brought out by the Lane Mfg. Company, Montpelier, Vt. The object of the design has been to avoid the complications and difficulties of operation which have characterized this class of apparatus and to that end friction wheels, rocker frames and twin engine motors have been entirely done away with. Using an inclosed Duke reversing engine connected to the winding drum through reduction

gearing, the first pair of which is machine cut, has brought about this simplification of design.

The engine which is of the piston type is started, stopped and reversed by a single lever which has full control of the mechanism. The machine is built both with and without friction grip clutch on the drum pinion as this attachment is required only with very large derricks where the strains set up by the swaying of the load and boom are severe. The friction is adjustable for different degrees of pressure and automatically



The New Derrick Turning Engine Built by the Lane Mfg. Company, Montpelier, Vt.

safeguards the mechanism against excessive strains.

The winding drum is 16 in. in diameter and 16 in. through its flanges which are 2 in. high and drilled for wire rope. The turning gear has no dead center and is entirely contained and inclosed in its casing.

CURRENT METAL PRICES.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought are given elsewhere in our weekly market report.

IRON AND STEEL— Bar Iron from store—

Refined Iron:	
1 to 1½ in. round and square.....	per lb 1.90¢
1½ to 4 in. x ½ to 1 in.....	per lb 2.10¢
1½ to 4 in. x ½ to 5-16.....	per lb 2.10¢
Rods—½ and 1-16 round and square.....	per lb 2.10¢
Angles:	
8 in. x ½ in. and larger.....	per lb 2.10¢
8 in. x 3-16 in. and ½ in.....	per lb 2.30¢
1½ to 2½ in. x ½ in.....	per lb 2.30¢
1½ to 2½ in. x 3-16 in. and thicker.....	per lb 2.10¢
1 to 1½ in. x 3-16 in.....	per lb 2.30¢
1 to 1½ in. x ½ in.....	per lb 2.30¢
¾ x ½ in.....	per lb 2.40¢
¾ x ¾ in.....	per lb 3.50¢
¾ x 3-32 in.....	per lb 4.30¢
Tees:	
1 in.....	per lb 2.65¢
1½ in.....	per lb 2.45¢
1½ to 2½ x ½ in.....	per lb 2.15¢
1½ to 2½ x 3-16 in.....	per lb 2.35¢
8 in. and larger.....	per lb 2.15¢
Beams:	
Channels, 3 in. and larger.....	per lb 2.10¢
Bands—1½ to 6 x 3-16 to No. 8.....	per lb 2.30¢
"Burden's Best" Iron, base price.....	per lb 3.15¢
Burden's "H. B. & S." Iron, base price.....	per lb 2.95¢
Norway Bars.....	per lb 3.60¢

Merchant Steel from Store—

Bessemer Machinery.....	per lb 1.90¢
Toe Calk, Tire and Sleigh Shoe.....	per lb 2.50¢
Best Cast Steel, base price in small lots.....	per lb 2.70¢

Sheets from Store—

Black	One Pass, C. R.	R. G.
	Soft Steel	Cleaned.
No. 16.....	per lb 2.55¢	per lb 2.80¢
No. 18 to 20.....	per lb 2.70¢	per lb 2.90¢
No. 22 and 24.....	per lb 2.70¢	per lb 3.00¢
No. 26.....	per lb 2.90¢	per lb 3.10¢
No. 28.....	per lb 2.90¢	per lb 3.30¢

Russia, Planished, &c.

Genuine Russia, according to assortment.....	per lb 12 @ 14¢
Patent Planished, W. Dewees Wood.....	per lb A, 10¢; B, 9¢ net.

Galvanized.

No. 12 and 14.....	per lb 2.95¢
No. 22 to 24.....	per lb 3.30¢
No. 26.....	per lb 3.50¢
No. 28.....	per lb 3.80¢
No. 20 and lighter 36 inches wide, 25¢ higher.	

Genuine Iron Sheets— Galvanized.

Nos. 22 and 24.....	per lb 5.75¢
No. 26.....	per lb 6.25¢
No. 28.....	per lb 7.25¢

Corrugated Roofing—

2½ in. corrugated.	Painted	Galvd
No. 24.....	per 100 sq. ft. \$3.25	4.90
No. 26.....	per 100 sq. ft. 2.95	4.00
No. 28.....	per 100 sq. ft. 2.60	3.75

Tin Plates—

American Charcoal Plates (per box.)

"A.A.A." Charcoal:	
IC, 14 x 20.....	per lb 6.35
IX, 14 x 20.....	per lb 7.00

A. Charcoal:

IC, 14 x 20.....	per lb 5.40
IX, 14 x 20.....	per lb 6.50

American Coke Plates—Bessemer—

IC, 14 x 20.....	per lb 4.40
IX, 14 x 20.....	per lb 5.40

American Terne Plates—

IC, 20 x 28 with an 8 lb. coating.....

IX, 20 x 28 with an 8 lb. coating.....

Seamless Brass Tubes—

List November 11, 1908. Base price 18¢

Brass Tubes, Iron Pipe Sizes—

List November 13, 1908. Base price 18¢

Copper Tubes—

List November 13, 1908. Base price 21¢

Brazed Brass Tubes—

List August 1, 1908. 19¢ per lb

High Brass Rods—

List August 1, 1908. 14½¢ per lb

Roll and Sheet Brass—

List August 1, 1908. 10½¢ per lb

Brass Wire—

List August 1, 1908. 14½¢ per lb

Copper Wire—

Base Price. Carload lots mill 14 ¢

Copper Sheets—

Sheet Copper Hot Rolled, 16 oz (quantity lots) per lb 8 ¢
Sheet Copper Cold Rolled, 1¢ per lb advance over Hot Rolled.
Sheet Copper Polished 20 in. wide and under, 1¢ per square foot.
Sheet Copper Polished over 20 in. wide, 2¢ per square foot.
Planished Copper, 1¢ per square foot more than Polished.

METALS— Tin—

Strait's Pig.....	per lb 30¢
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Copper—

Lake Ingot.....	per lb 14¢
Electrolytic.....	per lb 14¢
Casting.....	per lb 14¢

Spelter—

Western.....	per lb 6¢
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Zinc.

No 9, base, casks... per lb 8 ¢ Open.....	per lb 8 ¢
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Lead.

American Pig.....	per lb 5 ¢
Bar.....	per lb 5 ¢

Solder.

½ & ¾, guaranteed.....	per lb 20¢
No. 1.....	per lb 20¢
Refined.....	per lb 18 ¢
Prices of Solder indicated by private brand vary according to composition.	

Antimony—

Cookson.....	per lb 10¢
Halletts.....	per lb 10¢
Other Brands.....	per lb 10¢

Bismuth—

Per. lb.....	\$2.00 @ \$2.25
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Aluminum—

No. 1 Aluminum (guaranteed over 99% pure), in bars for remelting.....	per lb 18 ¢
Rods & Wire.....	Base Price 18 ¢
Sheets.....	Base Price 18 ¢

Old Metals.

Dealers' Purchasing Prices Paid in New York

Copper, Heavy cut and crucible.....	per lb 16.75¢
Copper, Heavy and Wire.....	per lb 16.50¢
Copper, Light and Bottoms.....	per lb 8.50¢
Brass, Heavy.....	per lb 7.25¢
Brass, Light.....	per lb 6.75¢
Heavy Machine Composition.....	per lb 9.50¢
Clean Brass Turnings.....	per lb 7.00¢
Composition Turnings.....	per lb 8.25¢
Lead, Heavy.....	per lb 6 ¢
Lead, Thin.....	per lb 5 ¢
Zinc Scrap.....	per lb 4 ¢



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The Hawley Automatic And

The Chester Steel Casting C

American Boiler Manufactu

Heavy Steel Shells for Ore

A New Garvin Milling Mac

The New Fay & Scott Gap

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The New Haven Sand-Blast

The Nuttall Company's Stre

The Philadelphia Foundry

The American Shipbuilding

Current Metal Prices